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ORIGINAL ARTICLES.

SOME NOTES ON VOCAL FREMITUS.¹

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IN the current text-books the notices of palpation of the chest as a means of physical diagnosis are, I think, surprisingly inadequate. And after talking and working with medical men—many of them well-trained and acute observers—who come from various colleges in the United States and Canada to this city for study, one can hardly avoid the impression that palpation has fallen into professional disesteem. Every one seizes his stethoscope and at once begins to listen,—as though in comparison with auscultation all other methods were negligible. When, for example, I say that the first and earliest sign of pneumonic consolidation, antedating bronchial breathing and pectoriloquy by twelve to thirty-six hours, is increase of *fremitus* over the suspected area, I am not infrequently met with confessed ignorance or even with incredulity. I venture therefore to make herewith a modest plea for palpation.

And inasmuch as the palpation of the heart and vessels is a large subject naturally falling into a division by itself, I shall limit myself tonight to some rather irregularly arranged observations on *vocal fremitus*.

The Latin word *fremitus* might be nicely defined by its English equivalent *growling*. The French physician Reynaud (*Journal Hebdomadaire*, 1829) is said to have been the first to observe its practical value in physical diagnosis. *Fremitus* may be classified as (1) *rhonchal*, arising from coarse râles, moist or dry; (2) *tussive* or *tussile*, from coughing; (3) *borborygmie*, from transmitted gurgling of intestinal gas; (4) *pleuritic*, (5) *succussive*, (6) *cardiac* and *vascular*, and (7) *vocal*.

Vocal fremitus is cognized by the touch and pressure senses. It is the jarring or "growling" sensation imparted to the fingers by vibrations from phonating vocal chords when the hand is placed on certain parts of the patient's body.

The source of the sensation, the vibration of the chords, is reinforced by the resonance of the mouth and nasal passages. The oral resonance is greatest for tactile purposes when the vowel sound of *oo* in *soon*, or *oo* in *foot* is made, the mouth cavity then being at its longest by the protrusion of the lips, and the fundamental note of the chords (that of lowest pitch) being reinforced, while the overtones (of less volume and

higher pitch) are practically effaced. This curious fact, long ago experimentally brought out by students of the subject and fully confirmed scientifically by Helmholtz, can be verified by any one for himself when an intelligent male patient is in hand with good control of the voice.¹

Instead, then, of the stock phrases "one-two-three" or "ninety-nine," the patient can often with better advantage be required to *sing* the sound *oo* or *oo* in as bass a voice as practicable, or to speak words like *good*, *boodle*, *rood*, *moon*, and no combination of words should be used in which *h*, *k*, *t*, *p*, *ph*, *f*, *th*, *ch*, *sh*, or *s* appears, as their proper pronunciation momentarily suspends the vibration of the chords.

Vocal fremitus is of course more reliable when the patient can maintain the initial pitch and intensity of his utterance to the end of the trial. This is a common source of error with students, the subject dropping his voice from fatigue or inattention when half way through the vocal exercise. In cases of extreme weakness or of aphonia from whatever cause, I have thought that a substitute for the vocal chords might be supplied by a reed horn of good size between the patient's lips, but from other considerations this resource would naturally be of limited usefulness.

I need stop only a moment to observe that the vibrations of the voice whether palpated or listened to, have of course *quality* or *Klangfarbe* as well as *pitch and intensity*; but inasmuch as the quality is nearly invariable in the individual patient, we will consider pitch and intensity only.

The variation of the fremitus with the varying loudness of the voice is familiar to all beginners; the louder the voice the *longer* the individual sound waves are, and a large wave of any length is of course more palpable than a small one; though I am not satisfied that the two vary in mathematical ratio.

As to *pitch*, the lower the *pitch* of the voice, the fewer the vibrations per second; and the fewer the vibrations, the more perceptible to the nerve ends the individual waves again become. The practical value of this fact is, however, overlooked in the text-books. With women and with reasonably intelligent children over six years of age, a marked improvement in the palpability of the fremitus can be obtained at once, if the patient be told to speak in as deep a voice as possible instead of in the usual shrill tone. The fremitus over the lower part of the left lung so often absent—i.e., subliminal—in the patients mentioned, can by this means be usually magnified to a degree readily perceptible to the fingers.

Palpation of the fremitus should be made with

¹ Read before Section in Medicine, New York Academy, January, 1904.

¹ A fact observed long ago may be incidentally noted, that when egophony is absent or only feebly present with other vocal sounds, it may be made much more apparent to the ear by phonation of the same sound, *oo*.

the hand the observer uses most, and with the palmar surface of the four fingers. Usually not enough vibrations are taken up by two or three fingers to form a reliable judgment. Sometimes only the whole hand can collect a palpable vibration, the motion being otherwise subliminal. I do not think the *side of the palm* is the best means of testing fremitus; first, because its superficial area is often too small; secondly, because the palmar surfaces of the fingers and hand have many more tactile nerve endings to the square inch than the side of the palm has; and thirdly, these nerve endings are usually highly specialized by frequent use. Two symmetrical areas of the chest should be compared *successively* with the same hand; in using two hands at once the hand less often exercised will be less sensitive, and, moreover, the attention is divided and a nice distinction prevented.

An instrument of precision (less cumbersome than the large machines of the physical laboratory) for determining the exact intensity of fremitus is greatly to be desired, and ultimately it will doubtless be invented; but meanwhile a highly trained tactile sense is often capable of extraordinarily fine discriminations, and there seems to be no limit to its perfectibility by practice.

It is usually stated that fremitus is conveyed to the chest through the wind-pipe, aerial vibrations being transmitted on the principle of the speaking tube. This doubtless is true, but it seems reasonably sure that the stout and firm walls of the trachea and bronchi also assist, and perhaps to a marked degree. Fremitus is also conveyed by the vertebral column and true ribs. A brisk fremitus can be felt at the top of the head, on the back bone, and even on the sacrum when a strong male larynx is phonating. The rib fremitus, however, is probably impalpable; at all events being equally conveyed to the two sides it has only a secondary bearing on diagnosis.

I think it ought also to be noted that accumulations of fat and muscle on the exterior of the chest are not so destructive of fremitus as is usually observed. I noticed in a patient recently under observation, who had congenital absence of the right pectoralis major and minor, with absence of the anterior fold of the right axilla and apparently normal lungs,—that the right fremitus seemed very little increased over the right thorax in comparison with the left.

All teachers emphasize more or less the excess of the vocal fremitus on the right side, in front. Some of the text-books give forth a more dubious sound when speaking of the relative fremitus behind. As a matter of fact fremitus is everywhere larger on the right side than over any *symmetrical portion* of the left side; and the posterior right-sided fremitus is often larger than the anterior. That is, I think it safe to say that in 60 to 75 per cent. of cases with the patient in the usual position for examining the back, the right vocal fremitus below the angle of the scapula is *absolutely* larger than over any other part of either right or left chest.

The dextral excess is usually, and I suppose correctly, explained as the result of the relative anatomy of the right and left bronchus, into which it is needless to enter. A. A. Smith affirms, and I think with correctness, that the heavy and firm mass of the liver reenforces and reflects the dextral fremitus.

I wish to remark also on the *degree* of the right-sided excess. And first as to age, excess of right fremitus is physiologically greater from the tenth to the twenty-fifth year than at other ages. This fact was also first called to my attention by Dr. Smith. The reason is doubtless developmental; some satisfactory explanation might be found by measurements of the relative growth of the right and left bronchi during adolescence. None such have been made, so far as I am informed, but patient observation in a large clinic for some years will convince almost any skeptic that the assertion is true.

A numerical comparison of the normal right and left fremitus may seem far-fetched and even provoke a smile when the fingers are the only guide. I venture, however, to affirm that if (with the age limitation just mentioned) the right subclavicular fremitus be called *3a* the left will be usually *2a*; or, if the right be *4a* the left will be *3a*, making a normal ratio (right to left) of 3 : 2, or 4 : 3. When the right excess becomes greater than this and the ratio becomes 3 : 1½ or 4 : 2, or 6 : 3, the condition is *pathological*, though from fremitus only it is not always possible to say what is wrong.

Another important fact (perhaps already observed and described by some one, though I have found no printed reference to it) is that the palpable vibration gotten by putting the four fingers transversely and snugly over the larynx (Adam's apple) is generally four or five times as great as the right subclavicular fremitus; the two being related as 5 : 1 or 4 : 1. *If the right or left subclavicular fremitus becomes for any given voice widely variant from this ratio, the condition is pathological.* I find that a diagnosis of consolidation of the right apex when the laryngeal fremitus is to the right subclavian fremitus as 4 : 2 or 6 : 3, is usually confirmed by the other signs. If this seems an *ex cathedra* statement, I ask only that it be given a careful trial before it be disputed.

The normal relation being as described, when the fremitus on the two sides is *equal* we confront a difficulty, namely, Can it be an accidental anomaly, or is it pathological? Here, of course, the autopsy would be the ultimate appeal, but if we may draw safe conclusions clinically, I should say that the right-sided excess is one of the most fixed and permanent phenomena in thoracic diagnosis, and that in 99 cases out of every hundred bilateral equality is pathological. *A fortiori* sinistral excess is pathological.

The causes of equality or of left-sided excess are in general four:¹ (1) Left consolidation;

¹ Mutatis mutandis the first three also explain pathological right-sided excess.

(2) Any process on the right side which dissociates the visceral from the costal pleura; (3) Obstruction of the right bronchus; (4) Transposition of the viscera.

These points might be elaborated, but my time is short. I may say as to obstruction of the right bronchus, however, that it may be the most baffling of all the causes. Plugs of mucus, mucous polypi, bronchial stenoses, foreign bodies, diphtheria membranes, the pressure from without of aneurisms and lymph-nodes and mediastinal tumors—must at all times be considered. When the first three causes can be reasonably excluded and the heart cannot be found on the left side, transposition is a justifiable and highly probable diagnosis.

A conventional statement in the text-books requires brief notice here, namely, that vocal fremitus is less than normal in vesicular emphysema. Some years' personal study of emphysematous chests will convince the unprejudiced observer that it is not true. Simple dilation of the air-sacs with partial atrophy of their walls does not modify palpable fremitus to any serious degree either way. Of course these patients usually have a hoarseness due to chronic laryngitis, and this, it may be claimed, increases the quantity of vibration at its source. But comparison of the laryngeal and subclavicular fremitus in the way I have suggested will show normal relations.

An odd fact, so rarely noticed as to be a mere curiosity, is, that in old women and small anemic children with flabby tissues and soft trachea, the relation of right to left side may be changed by holding the patient's chin high and rotating the head to the left. This perhaps artificially compresses the right bronchus by traction and torsion of the windpipe.

A single additional note may be made in conclusion. Fremitus with a sitting or standing patient will be increased slightly if he lies down on a hard bed or table; lying on a soft bed makes no difference that after many trials I could ever notice with the unaided fingers.

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RESULTS IN DIFFUSE SEPTIC PERITONITIS TREATED BY THE ELEVATED HEAD AND TRUNK POSITION.

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FROM October 17, 1899, to January 17, 1904, Dr. George R. Fowler and myself have operated upon one hundred well-marked cases of diffuse septic peritonitis, resulting from inflammation of the vermiform appendix. We have not refused operation to any case, however desperate. Of these cases, 67 per cent. have resulted in recovery. The certainty with which the vast majority of cases of diffuse septic peritonitis, however treated, died in the past, is well known. Any method of treatment which will lower the tre-

mendous mortality is worthy of consideration. It is with the purpose of bringing such a method to your attention that this paper is presented.

The technic employed in the treatment of these cases is as follows: The abdomen is entered through an incision not larger than is absolutely necessary to deal quickly with the primary focus of infection. All accessible infection is sponged away with stick sponges wrung out of a 1-3,000 bichloride solution. The primary focus of infection is isolated with laparotomy sponges wrung out of bichloride solution and removed. The immediate neighborhood is flushed with a solution made up of equal parts of peroxide of hydrogen and a saturated aqueous solution of bicarbonate of soda. This solution may be used slightly warm. The foaming peroxide-soda solution is washed away with saline solution at a temperature of 110° F. The neighborhood is then dried. Accessory collections of pus in the pelvis, under the liver and between coils of intestine are searched for, opened up, and irrigated in a similar manner. Finally a Chamberlain douche tube is placed in the pelvis and then in other parts of the abdominal cavity, and peroxide-soda solution introduced through it. The entire abdomen and pelvis is then flooded with hot saline, the Chamberlain douche nozzle being moved from one point to another. The intestines are at no time allowed to escape through the wound. The escape of the solution is facilitated by introducing the fingers into the wound.

The tubing conveying the saline should be of large caliber to allow of rapid flushing. The flushing with saline continues while the wound is being sutured. A large curved-glass drainage tube is introduced into the pelvis, its upper end emerging from the lower angle of the wound. There are numerous small fenestrations in the end of the tube. No other drainage is used unless there are necrotic abscess cavities in which case a wicking drain is placed therein and emerges alongside the glass tube. Finally the douche nozzle is withdrawn and the sutures tied. Eighty cases were so treated. In females drainage has in some cases been through a posterior colpotomy done from within the abdomen. In five personal cases I have relied upon this alone, closing the abdominal wound without drainage. In such cases the drainage tube is of very large caliber, of rubber, and through it are led numerous strands of wicking. This latter would seem to be the ideal way of treating such cases in females. In 22 cases, in place of a large glass tube in the pelvis, from 12 to 21 bundles of wicking or gauze strips have been led from various parts of the pelvis and abdomen to emerge from the lower angle of the wound.

The glass drainage tube is dressed independently of the wound. This is done by nicking a 12-inch square of rubber dam in the center, putting the rubber on the stretch and pressing the neck of the tube through the opening thus made. A narrow strip of gauze is passed to the bottom of the tube to act as a capillary drain. The upper

end of the strip is placed in the center of a yard of loosely rolled gauze. The edges of the rubber dam are caught up and tied so as to form a bag in which the gauze is enclosed. The wound is dressed with plain gauze held in place by adhesive plaster. The binder is split to allow the tube dressing to emerge. Thus pressure upon the tube is avoided and the tube can readily be aspirated and a fresh dressing applied.

Directly after operation the patient is placed in the elevated head and trunk position. This may be done by placing a chair or stool beneath the head-piece of the bed. At the German Hospital, we employ a frame consisting of two side supports and a central bar connecting the two. The side supports have each three holes at different levels into which the connecting bar may be introduced according to the height desired. This frame is secure and allows of different levels being employed. The elevation should never be less than one foot. A folded pillow is placed against the buttocks and through the fold of the pillow is passed a stout bandage which is tied on each side to the head of the bed. This allows the patient to rest comfortably and maintains his position without exertion on his part. Moreover, the knees being flexed relaxes the abdominal wall and this is always grateful to the patient. A saline enema is given every three or four hours for four to six times. If gas does not pass freely, a high enema of turpentine and oxgall is given. Strychnine and whisky are administered hypodermically to combat shock. Fluids by the mouth are given ad libitum. The glass drainage tube is redressed every four hours and its contents evacuated. After three or four days, when the discharge is lessening, a smaller rubber tube is introduced through the glass tube and the glass tube withdrawn, leaving the rubber tube in its place. This is shortened from day to day and finally replaced by a strip of plain gauze.

Before our employment of the elevated head and trunk position in the after-treatment, we saved about 25 per cent. of this class of cases. For the reason that statistics of a few cases may be misleading, beyond a preliminary report of 13 consecutive cases of diffuse septic peritonitis with but one death,¹ we have reported no further results until the present, preferring to wait until we could show results in a sufficiently large number of cases to give a fairly true idea of the merits of the treatment. At the German Hospital we have operated upon 46 consecutive cases with but nine deaths, 81¼ per cent. of recoveries; at the M. E. (Seney) Hospital, 30 cases with 12 deaths, 60 per cent. of recoveries; at the Brooklyn Hospital 22 cases with 12 deaths, 45½ per cent. of recoveries.

Practically the only way in which treatment differed was in the drainage. Eighty cases were

drained by placing a large glass tube in the pelvis. In some there was used supplemental gauze or wicking drainage for necrotic areas. Thirty of these cases died. One case was drained by a glass tube in the pelvis and a rubber tube through the posterior vaginal fornix. This case recovered. Five cases were drained per vaginam. Of these one died. Twelve cases were drained with multiple bundles of wicking or gauze strips. Two of these cases died. One case was drained through a rubber tube in the lumbar region, and recovered. One case was closed tight without drainage, and also recovered.

Of the 33 deaths, 17 occurred within twenty-four hours after the operation. These cases were profoundly septic and nothing could have saved them. On the second day, five cases died of profound sepsis, one of meningitis, one of lobar pneumonia. On the third day, four cases died of profound sepsis. On the fifth day one case died of septic pneumonia. On the eighth day one case died of septic ulceration of the stomach and general sepsis. On the thirteenth day one case died of meningitis and one of septic pneumonia and right-sided empyema. On the thirty-second day one died of septic endocarditis.

All the cases operated upon with one exception, even those which lived less than twenty-four hours, showed an immediate and decided improvement of the peritoneal condition. Vomiting was allayed, gas passed freely, distention diminished and they became more comfortable. The one exception was a case drained per vaginam who died on the second day of profound sepsis without any abatement of the peritoneal symptoms.

I would state the salient points in the treatment of these cases as follows: (1) A small incision and the avoidance of eventration; (2) thorough cleansing of the primary focus of infection and removal of the appendix. (3) Evacuation and cleansing of all accessory abscess cavities and the pelvis before washing out the peritoneal cavity. (4) A rapid systematic flushing of the peritoneal cavity with peroxide-soda solution followed by hot saline. (5) The continuance of the saline flushing until the sutures are placed, and for the most part tied. (6) The provision of proper drainage for the pelvis either by means of a large glass tube containing a capillary drainage strip emerging through the lower angle of the wound or, in females, by a large caliber rubber tube filled with wicking passed through a posterior colpotomy incision. (7) The drainage of accessory abscess cavities with gauze or wicking. (8) The elevation of the head of the bed to accelerate the drainage of septic fluid into the pelvis where it can be removed through the glass tube or, in case of vaginal drainage, find a ready exit.

Philadelphia Hospital Examination.—At the recent examination of candidates for resident physicians, 41 of the 85 applicants made the required average of 70 per cent. Of the 19 highest on the list who will be appointed to fill regular vacancies, University of Pennsylvania has 16, Jefferson 2, and Medico-Chirurgical 1.

¹ These cases were reported in the *Medical Record* for April 14, 1900, and January 16, 1900. With two exceptions the peritonitis followed appendicitis. The two exceptions were due, one to a ruptured ovarian cystoma with a twisted pedicle, the other followed an operation for ventral hernia and was probably due to infection in a heavy strand of catgut. The fatal case developed meningitis on the eleventh day following the operation, and died on the thirteenth day. The peritoneal symptoms had subsided.

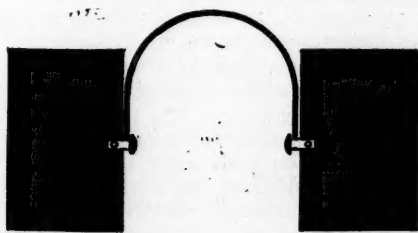
TWO APPLIANCES TO FACILITATE EYE AND THROAT WORK.

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ANY device which aids in medical practice must depend for success upon its paramount utility. So, the two appliances, herewith depicted will have their fate decided by their ability (or lack of it) to fill a long felt want.

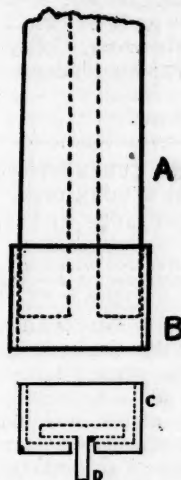
The first appliance is a shield to prevent disagreeable and annoying reflections from the posterior surface of trial lenses used by oculists to determine refraction. For many years I have been bothered by patients complaining that the glasses were "dim," looked "smoky," or objects behind or at the side were seen by reflection in the glasses. Most oculists have their patients sit near a window and the reflection of the window-sash, curtains, or objects out-of-doors is quite sufficient to distract the patient's attention and so prevent a proper fitting of the glasses, besides taking time and trying the temper of the physician by the uncertain answers. Usually it has been sufficient to have the patient hold the hand or a card at the side of the head corresponding to the eye which is being tested, but this becomes tiresome during a long examination, and is even impossible to stout persons. Finally, the difficulty was solved by having a pair of shields made connected by a curved steel spring long enough to go over the patient's head and adjusted so as to clasp the head firmly without undue pressure. The wings or shells are made of aluminum, blackened and measure 4 by 6 inches. The part of the shield which comes in contact with the head is padded so that no discomfort is caused. The pads usually rest on the temporal region just above the zygomatic process in front of the ear.



The shield is made in three parts, the wings being attached to the spring by thumb screws and one or both wings may be used at a time. Of course it would be impossible to use this device on women wearing hats, but as it is quite impossible to examine the eyes with the present style of wide-brimmed hats, their removal before the examination becomes necessary and no obstacle is offered to its use. The shield (Fig. 1) was made for me by Gall and Lembke and might be called an oculist's reflex shield.

In using sprays to treat diseases of the larynx or nasopharynx an appreciable length of time

elapses between the opening of the air valve by the thumb of the operator and the actual issuance of the fluid from the tip of the instrument. This is particularly the case where aspiration is the principle employed; i.e., a stream of air passing over the mouth of a tube exhausts the air from it, creating a partial vacuum, and fluid from the receptacle into which the tube is placed is forced upward by atmospheric pressure. The larger and longer the tube the longer interval before the fluid emerges, and the weaker the air pressure used to



exhaust the tube. Where the air pressure is applied directly to the surface of the fluid in an airtight receptacle the interval is not so great, but is still appreciable. The column of cold air (especially in the former instrument) with perhaps a few drops of fluid causes the patient to gag. When the larynx is closed or the soft palate is retracted against the posterior wall of the pharynx, an effective cleansing or medication of the parts becomes impossible. The spray may be made practically instantaneous and the parts treated before the spasm occurs by having the tube already filled with the desired fluid. This may be accomplished by placing a valve at the lower end of the tube which rests in the fluid and so preventing that in the tube from returning to the general body of fluid in the receptacle.

A sleeve (B) is made which is fastened to the spray-tube (A) by wax or other material, and the valve seat (C) is provided with a high rim or collar which fits snugly over the part B, the latter being slightly beveled from above downward.

The Valve D is ground accurately to the valve seat and is provided with a stem, triangular in cross-section, which passes through a circular opening in the valve-seat, thereby permitting the fluid to flow freely upward during use. The valve is made sufficiently small to permit fluid to pass around it into the tube above and raises slightly during use, but when the air pressure is removed the valve drops back into its seat and the fluid is retained in the tube.

This attachment may be made of brass or bronze (silver or gold-plated to prevent attack by the medicaments used), glass or aluminum. The latter answers well for general purposes. Only slightly greater air-pressure is required to operate the spray tube with the valve attached than without it.

It may be objected that this device is unnecessary as in spraying the post-nasal space a palate-retractor may be employed, but its use is unpleasant without cocaine and the latter is also unpleasant, if not dangerous.

I am indebted to Mr. John T. Hoyt, of the Physiological Laboratory, College of Physicians and Surgeons, for his kindness in making this attachment.

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A STUDY OF THE TUBERCULOSIS PROBLEM IN NEW YORK CITY.¹

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IT is impossible to discuss all the many phases of this subject within the limits of any one paper. The object of this present study is to deal with those aspects of the tuberculosis problem which are of practical interest and importance to the physician, as he actually meets with tuberculous patients in private or dispensary practice among the poor of New York City—meaning by that, only the Boroughs of Manhattan and Bronx.

Among physicians there are two distinct, and almost diametrically opposite, points of view in regard to this disease when it occurs among the poor. The first is that of the comparatively few men who are interested and actively engaged in the study and treatment of this disease under such conditions; and we find them optimistic, even enthusiastic in regard to it. The other viewpoint is that of the indifferent, or pessimistic, and is, I am forced to believe, that of the majority of the members of our profession.

It is enthusiasm arraigned against indifference. Both will probably need modification before the true position is reached. The cooling of enthusiasm, however, is an easy process; but the warming up of indifference is a more difficult task. It is, nevertheless, for this latter end that we are interested in this present discussion.

Upon the surface, it seems strange that there should be any such indifference, but, on closer inspection, I think that we can trace its origin to the medical school, where we are interested because of the variety of physical signs presented by this disease, but where this interest is checked, by the impossibility of following the results of any continued form of treatment; through the hospital, where our consumptives are recognized only to make sure of a rigorous exclusion, and so any study of this disease is impossible; to the dispensary, where we are immediately over-

whelmed by the numbers of these patients, who look to us to help and to cure them.

These patients often live in dark, dirty overcrowded rooms; their food is poor, insufficient and badly cooked; and in order to live, even in this fashion, they must, as a rule, do hard and confining work. These are discouraging conditions under which to apply our modern notions of the treatment of tuberculosis, depending, as it does, upon plenty of light, good air, nourishing food and rest. It is therefore not so surprising that few or no attempts are made so to apply them, and consequently these patients almost invariably do badly and are looked upon as sad, chronic, hopeless cases.

This is the tuberculosis problem in the practical form that it presents itself almost daily to each one of us. It is our present object to throw some light upon this problem, and perhaps to offer some encouragement for the hope of its ultimate solution.

Such a result can perhaps best be accomplished (1) by a brief description of the existing institutions and agencies which have an influence upon this subject; (2) by a demonstration of the way in which physicians may utilize these institutions to meet indications arising in various classes of cases; and (3) by an indication of the extent of our responsibilities toward these patients.

For convenience, these different institutions may be divided according to their functions into: (1) those for education and prevention; and (2) those for treatment.

INSTITUTIONS FOR EDUCATION AND PREVENTION.

The *Health Department* of the city deserves first mention here, both on account of the importance of its work and because of its priority in this field, in point of time. Just ten years ago, the first resolutions were adopted, involving the reporting to the department of certain classes of cases of tuberculosis. This resulted in increased opportunities for inspection and observation, as well as for the distribution of information concerning this disease, by means of oral and printed instructions and advice. The number of cases thus reported increased very rapidly, and the campaign of education grew more extended in proportion, until in 1897 an amendment to the Sanitary Code was adopted, declaring "pulmonary tuberculosis to be an infectious and communicable disease, dangerous to the public health," and making it compulsory for every physician to report all such cases, in the manner now well known and generally observed.

Although this was only seven years ago, it is difficult for us now to realize the general storm of disapprobation which this ruling aroused, even from many of the leading physicians of the city. But, in the light of our present knowledge, I think that it is no exaggeration to say that, directly or indirectly, no single influence has been so potent in bringing home to the community—physicians and laity alike—the nature of this disease, and the means by which its ravages may be success-

¹ Read before the Quiz Medical Society, February 13, 1904.

fully resisted. The scientific soundness of this section of the Code is now universally admitted and it stands to-day unchanged, excepting that all forms of tuberculosis, as well as the pulmonary forms, are now included. The growth of this work is shown by the increase in number of cases reported from 4,166 in 1894, to 13,383 in 1902.

In addition to the educational features of this work already mentioned, there are the visits of the inspectors, who report the conditions prevailing in the homes, as regards light, ventilation, cleanliness, overcrowding, general sanitation, and precautions taken to prevent the spread of infection, etc. They instruct the patient and his family, both verbally and by circulars, in the danger and manner of infection and in the proper disposal of the sputum, and sputum cups are provided for those who cannot afford to procure them for themselves. More recently, trained nurses have been utilized with great success in this work, especially for the care and observation of the more advanced cases.

Considerable educational value is also attached to the free examination of sputum made by the Health Department, in the emphasis thus placed upon the value as well as the limitations, of this form of investigation. In 1903, over 11,000 specimens of sputum were thus examined.

All of these educational means, of course, make also for the prevention of this disease; but, in addition, must be mentioned the prohibition of spitting in public places and conveyances, the disinfection of rooms after death or removal, and the compulsory removal of those who, either wilfully or for other reason, neglect the proper care of their sputum and consequently are a serious menace to the health of their associates.

The department points with justifiable pride to the results of the foregoing methods of procedure, as shown by the reduction of mortality from tuberculosis. In 1881 the death rate from this disease was 4.2 per 1,000. In 1902 it was 2.29 per 1,000, a reduction of over 40 per cent. Of actual deaths from consumption there were 5,312 in 1881, and only 4,893 in 1902,—418 less deaths, although the population had increased over 700,000.

Such, very briefly, has been the noble work of the Health Department, and it is no more than simple justice to add that it represents practically the efforts of a single man, Dr. Hermann M. Biggs.

The *Charity Organization Society* must next be considered in its relation to this subject. In June, 1902, its Committee on the Prevention of Tuberculosis held its first meeting, and the following September began its active work. This work is best described by quotations from the statement by this Committee of its own objects.

1. "Research into the social, as distinct from the medical aspects of tuberculosis, for example, into the relations between the disease and overcrowding, infected tenements and unhealthy occupations, and also into the influence upon recovery of improved diet and hygienic living."

During the past year the results of this part of the committee's work are shown in a very comprehensive article by Miss Lillian Brandt, on the "Social Aspects of Tuberculosis," and another by Homer Folks, late Commissioner of Charities, based upon the social history of 1,000 cases in the Phthisis Infirmary of the Metropolitan Hospital.

2. "Education. The publication of leaflets and pamphlets, the giving of lectures, and the promulgation in every possible way of the fact that tuberculosis is a communicable and preventable disease; the widest distribution of the results of scientific research in this field and of the results of modern treatment, both in sanatoria and at home."

This part of the work has been well done. Last winter 81 lectures were given by physicians in various schools, clubs, churches, settlements, etc., in five or six different languages, with an aggregate attendance of 8,700. Other more scientific lectures were delivered at the United Charities Building, and copies of these lectures, with much other educational literature of a popular nature, have been widely distributed.

3. "The encouragement of movements for suitable public and private sanatoria, both for advanced and for incipient cases; for adults and for children; for free care, and also for the care of those who can pay moderate fees."

Under this category comes the activity of this committee in attempts to influence legislation:—twice successful in the recommendations for the establishment of a State Sanatorium and a Municipal Sanatorium, respectively; and once unsuccessful in the efforts to prevent the passage of the Goodsell-Bedell law, which is considered to be almost prohibitory of the establishment of any sanatoria for tuberculosis in this State.

4. "The relief of indigent consumptives by the provision of suitable food and medicine; by the payment of rent, when this is necessary to secure adequate light and air; and by transportation and maintenance at a distance, when, in the judgment of the committee, this is essential."

A good deal of attention has been paid to this feature of the work. For five months all applicants to the Charity Organization Society, where the necessity for relief was caused by tuberculosis in the family, were referred to the Central Committee and, where investigation proved its desirability, relief was given in the form of rent, fuel, special diet, medicine, etc. Provision was thus made for 211 families, and the expense incurred was \$1,000 a month. In April, lack of funds, as well as convenience of administration, made it necessary to turn this work back into the hands of the committees of the various districts, and the work of relief is still being carried on by them; but lack of funds curtails its efficiency to a certain extent. The interest taken by the Charity Organization Society in these cases is, however, very great, and this society and its committees constitutes, at the present time, one of the most efficient and potent forces now at work in this city toward the solution of the tuberculosis problem.

The *United Hebrew Charities* has also approached this problem in a most practical and efficient way. It likewise has its special Committee on Tuberculosis, which began its work in January, 1902, several months before that of the Charity Organization Society, and its objects and methods are best described by quotations from its own report:

"The methods made use of by the committee may be classified under the following general headings: (a) The placing of applicants in charge of a special agent. (b) Careful medical examination to secure a correct diagnosis. (c) Instruction of consumptives by means of pamphlets, tracts, etc., and, in particular, by verbal guidance, with special reference to the disposal of sputum, cleanliness of person and home, proper diet and exercise, cessation of unhealthy occupation, removal to more sanitary neighborhood, and, in general, following out the recommendations of the Board of Health. (d) Securing the most desirable medical treatment; where possible, in sanatoria. (e) Supplying necessary food, such as eggs, meat, etc., in sufficient quantities, and, in particular, an abundant supply of good milk. (f) Where change of climate was indicated by the medical examination, granting transportation to points desired. (g) Securing, particularly for the improved consumptive, out-door work and, where possible, positions in country towns. (h) Friendly visiting."

The general similarity between this work and that of the Charity Organization Society is apparent but considerable advantage is gained by the United Hebrew Charities in the fact that the administration of it is in more compact form and that it has more adequate means at its disposal. Less attention is paid to a general campaign of education and more is done for the individual patient. In fact, it is open to question whether some of this work does not belong more properly to medical jurisdiction; but, if so, criticism should be made rather of us who have neglected it, than of the institution which has taken it up.

The comparatively small number of consumptive Hebrews, the relatively adequate supply of funds, and the close association with the Bedford Sanatorium and the National Jewish Hospital, of Denver, are factors which combine to make this work of the United Hebrew Charities remarkably efficient, and one is compelled to admire the enthusiasm and thoroughness with which this, as well as most other Hebrew charities, are conducted.

Similar to the work of the Charity Organization Society and the United Hebrew Charities, but confined to the assistance of the patients and their families in their homes, is the work of the *Association for Improving the Condition of the Poor*.

This association investigates and relieves the necessities of all suitable cases that are referred to it. This relief includes the payment of rent, the provision of food, coal, etc., and for tuberculosis patients the supply of extra diet, in the

form of milk and eggs in abundance. There are at present 300 families under the care of this association, in which the cause of dependence is tuberculosis. The assistance thus given is of the greatest value, and the manner in which this work is carried on is most efficient.

The *New York Diet Kitchen Association* has seven kitchens or depots, in various parts of the tenement districts. From these kitchens are distributed milk and other forms of simple diet among the sick poor, upon requisition of the physicians of certain dispensaries. Although somewhat in need of funds, they are able to supply milk to many tuberculous patients, and stand ready to help as many more as their means will allow.

The *Nathan Straus Milk Depots* are also available for a certain number of these patients, although primarily intended for the use of infants and children. These depots are situated in convenient parts of the city, and tickets for milk may be obtained by application to Mr. Straus.

There are numerous other smaller relief agencies in New York, the greater number of which are connected with the various churches. Important among these may be mentioned the St. Vincent de Paul Society, St. Bartholomew's and St. Thomas' churches. Special diet and other assistance may be obtained from them, but it is usually better and more satisfactory to make application for such through the medium of the Charity Organization Society.

Another most important factor in the tuberculosis problem is the *Reform of the Tenements*. The beginnings of the present movement were in 1900, when the New York State Tenement House Commission was appointed, largely through the activity of the Charity Organization Society. This commission studied the whole tenement question thoroughly in every detail, and subsequently practically all of its recommendations were adopted by the legislature and became laws in 1901.

As one result of the new laws, the Tenement House Department was instituted as a separate part of our municipal government on January 1, 1902. Robert W. DeForest and Lawrence Veiller, who had been President and Secretary of the Commission, were appointed Commissioner and First Deputy Commissioner, respectively, of this new department, so that the execution of the laws was placed in the hands of those who had framed them.

The importance of this subject to our present discussion is well recognized, and is apparent from the fact that the great mass of the 20,000, and more, tuberculous persons in this city live in the tenements, and that it is in these tenements that the conditions which we now believe to be most essential for the prevention and cure of tuberculosis—namely, light, air and cleanliness—have previously been unknown and impossible.

The evils of the tenements have thus been summed up in the report of the commission: "Insufficiency of light and air, due to narrow

courts or air-shafts; undue height and the occupation by the building or by the adjacent buildings of too great proportion of the lot area; danger from fire; lack of separate water closets and washing facilities; overcrowding; foul cellars and courts; and other like evils, which may be classed as bad housekeeping."

The present law attacks these evils in three ways:

1. *By the New Tenements.* These must be so built that there is light and ventilation for every room. The air shaft is abolished and the size of courts increased. The height of buildings and proportion of lot space to be occupied are diminished. The halls have windows opening upon large courts, and each family has its own water-closet within its own apartment.

2. *By Altering the Old Tenements.* The main evils here were the dark interior rooms, the dark halls and the common privies, or "school sinks" in the yards. Investigation showed that there were 350,000 dark interior rooms with no windows, in New York. These must now be fitted with large interior windows in the partitions separating them from the outer rooms, thus providing considerable light and air. "School sinks" have been abolished and closets placed upon each floor. The halls must be light enough for an ordinary person to read in any portion of them, and this may be accomplished by windows to the outer air or glass panels in the doors leading to the rooms.

3. *By Adequate Supervision.* This is obtained by careful and constant inspection, to secure the enforcement of the laws. By the combination, in a separate department, of the duties which had previously been divided between the Health, Building, Fire and Police Departments, this supervision has been made possible and practicable, and it is now being consistently exercised.

Attention must also be called to the recommendations of the Tenement Commission in regard to the establishment of small parks in crowded tenement districts to replace unsanitary houses, and to the institution of public baths, playgrounds and recreation piers. A beginning has already been made in these directions, and each one of these improvements has a direct bearing upon our present subject.

Dr. Hermann Biggs thus comments upon the relation of the tenement house to tuberculosis: "There has been a reduction in the mortality from the tuberculous diseases in New York City since 1886 of 35 per cent., and I have no hesitation in saying that I believe, with a complete and efficient scheme for dealing with pulmonary tuberculosis, in the housing of the tenement house population, suitable hospital accommodations and the proper enforcement of precautionary measures, the death rate from the tuberculous diseases in New York City may be further reduced one-third within a period of five years. This would mean a saving of 3,000 lives annually. No other measures offer promise of such large returns in the diminution of suffering and death as those

which look to the prevention of tuberculosis in the tenement houses."

Because of the great amount of comment and criticism caused by the action of the Marine Hospital authorities, in classifying tuberculosis as a "dangerous, contagious disease," and therefore excludable under the immigration laws of this country, it may be of interest to note the actual results of this ruling.

From July 1, 1901, to December 31, 1903, a period of two and one-half years, during which this law has been presumably operative, 27 aliens have been certified at Ellis Island as suffering from pulmonary tuberculosis, and of these 19 were deported. As the total immigration at the port of New York during that same time was 1,421,853, it is evident that this exclusion has had no appreciable effect upon our tuberculosis problem.

This completes our review of the more important agencies active in education and the prevention of tuberculosis in New York. We will next consider

THE INSTITUTIONS FOR TREATMENT.

Of these institutions there are three classes: (1) Sanatoria; (2) Hospitals; (3) Dispensaries. The sanatoria and hospitals we will review in bare outline. The dispensaries we will consider more carefully, as having a more immediate bearing upon our especial topic.

Sanatoria.—1. The Adirondack Cottage Sanatorium, sometimes known as the Trudeau Sanatorium, situated at Saranac Lake, N. Y. Capacity, 100. Early cases only. Charges \$5 a week. Admission through examination. Examining physicians in New York City: Drs. James, Janeway, Loomis, Trudeau, Jr., and Miller.

2. The Loomis Sanatorium, Liberty, N. Y. Capacity, 135. Main building, 100. \$10 to \$25 a week. Any cases not bedridden. Admission by application to Resident Physician. Charitable Annex, 35; \$5 a week. Early cases. Admission through examination by Dr. Loomis.

3. The Montefiore Country Sanatorium, Bedford Station, Westchester County, N. Y. Capacity, 160. Early cases. Free. Application and examination at Montefiore Home from 11 A.M. to 1 P.M. daily.

4. Stony Wold Sanatorium, Lake Kushaqua, Adirondacks, N. Y. Capacity, 60. Early cases, in working women and children, including boys up to twelve years of age. Free. Application to Mrs. James E. Newcomb, and examination by any member of Medical Board.

5. The Sanatorium Gabriels, Paul Smith's Station, Adirondacks, N. Y. Capacity, 100. Early cases. \$10 to \$18 a week. One case in every ten, free. Application to Sister Superior, accompanied by any physician's certificate.

6. The National Jewish Hospital for Consumptives, Denver, Colo. (This is mentioned because 50 per cent. of its patients come from this city.) Capacity, 85. Free. Early cases only. Application and examination at United Hebrew Chari-

ties Building on second and fourth Mondays of each month, at 10 A.M.

The total sanatorium capacity is thus 640. Of course only a portion of this number (perhaps one-half) represents the available accommodation for New York City. It will be noted that for the poor there is accommodation only for early cases. All of these sanatoria have a long waiting list and it is useless to make application for patients in even moderately advanced stages of tuberculosis.

Hospitals.—1. Tuberculosis Infirmary of Metropolitan Hospital, Blackwell's Island. Under Department of Charities. Opened February 1, 1902, through activity of Commissioner Homer Folks. Capacity, 450. 350 in buildings and 100 in tent cottages, which are a great feature of the institution. Admits all stages of disease. Admission by physician's recommendation to Superintendent of Out-door Poor, foot of East Twenty-sixth Street. Boat leaves 10 A.M. and 3:30 P.M.

2. Seton Hospital, Spuyten Duyvil, N. Y. Under Sisters of Charity. Capacity, main hospital, 200—men only. Annex called House of Nazareth, for women and children, accommodates 180, making total capacity of 380. Admits all stages of disease. Admission through Superintendent of Out-door Poor, and city pays for board of each patient thus admitted.

3. St. Joseph's Hospital, East One Hundred and Forty-third Street and St. Anne's Avenue. Under Sisters of St. Francis. Capacity, 350, with 15 beds for children. All stages of disease. Application with physician's certificate at the hospital at any time, or through Superintendent of Out-door Poor.

4. Riverside Hospital. North Brothers' Island, under Department of Health. Capacity, 60. Admits all stages. Application through Health Department, who will compulsorily remove any case considered dangerously infectious.

5. House of Rest for Consumptives, Inwood-on-Hudson. Capacity, 35. Designed as a refuge for incurable cases. Admission by application to the Attending Physician, Dr. Linsly R. Williams. (This is the organization that for about ten years had its patients in St. Luke's Hospital.)

6. Lincoln Hospital, East One Hundred and Forty-first Street and southern Boulevard. Has two phthisis wards. Capacity, 40 beds. Admits all stages. Application at hospital or through Superintendent Out-door Poor.

7. Montefiore Home, Broadway and One Hundred and Thirty-eighth Street. Has phthisis wards accommodating 45. For advanced cases. Application at the Home between 11 A.M. and 1 P.M.

8. Bellevue Hospital. Has two phthisis wards accommodating 40 patients. They are for cases developing in the regular wards, and others who are too sick to be transferred to Blackwell's Island.

9. In Brooklyn. The Brooklyn Home for Consumptives and the Kings County Hospital re-

ceive tuberculosis patients, but with them we are not now immediately concerned.

All of these hospitals are entirely free. The male wards are overcrowded during the winter, but there is always room for women.

The Seton, Riverside and Metropolitan hospitals are fairly well adapted for the treatment of early cases. The others are better fitted to care for advanced and more or less hopeless cases. The Seton Annex, or House of Nazareth, is an excellent place for children.

The total hospital accommodation is 1,400.

Summary of Beds.—

SANATORIA.

Montefiore, at Bedford.....	160
Loomis	135
Adirondack Cottage	100
Gabriels	100
National Jewish Hospital	85
Stony Wold	60
	<hr/> 640

HOSPITALS.

Metropolitan	450
Seton	380
St. Joseph's	350
Riverside	60
Montefiore Home	45
Lincoln	40
Bellevue	40
House of Rest	35
	<hr/> 1,400

Grand total 2,040

There are prospects in the near future of an increase in these accommodations in the following ways: (1) by the opening of the State Hospital at Ray Brook, Adirondacks, N. Y., which is nearing completion; (2) by the erection of a Municipal Sanatorium, upon which favorable action has already been taken by the city authorities, but the selection of a suitable site is hindered by the provision of the Goodsell-Bedell law to which allusion has already been made. (3) The Free Masons have a plan on foot to erect a sanatorium for the tuberculous members of their order. (4) The Association for Improving the Condition of the Poor is about to erect a sea-side sanatorium for children near Coney Island.

Dispensaries.—1. Presbyterian Hospital. Several years ago Dr. Shively, at the Presbyterian Hospital Dispensary, recognized the importance of especial attention to the dispensary cases of tuberculosis, and considerable interest has been taken in these cases there, although no regulation of their home surroundings has been attempted.

2. Post-Graduate Hospital. At the Post Graduate Hospital, Dr. Russell has been carrying on a very careful and successful system of management of a considerable number of tuberculous out-patients. His general plan is one of super-alimentation with milk and eggs (sometimes as high as 5 quarts of milk and 18 eggs a day) with very free daily catharsis $\frac{3}{4}$ to $\frac{3}{4}$ of castor oil, supplementing this with an emulsion of mixed fats, and, where possible, with a month of preliminary treatment in bed, upon a strictly milk

diet. This class is limited to those who are able to afford this extra food, the cost of which is considerable, and the scope does not extend to systematic supervision of the home life.

The value of this work has been very great in demonstrating the practicability of the successful treatment of pulmonary tuberculosis in New York City, even in advanced cases.

3. *Vanderbilt Clinic.* About January 1, 1903, through the support and cooperation of Dr. James, there was instituted at the Vanderbilt Clinic, under the writer's supervision, a system of more careful management of these cases of tuberculosis than had before been customary. The main points in this system are special histories and regular weekly records of these cases, detailed oral and printed instructions in regard to this disease, free distribution of sputum pouches, and a visiting nurse, who makes written reports of the home conditions and cooperates with the physician to make these conditions conform as far as possible to the hygienic requirements for the treatment of this disease. Through this visiting in the homes, it is possible to supplement the dispensary treatment and to recognize the need for charitable assistance or hospital care. In other words, each patient is followed up and every effort is made to make use of the different agencies for helping them of which we have already spoken. At the Vanderbilt Clinic this work is done as a part of the regular duties in the Division of General Medicine, and there is no separate class for tuberculosis. Of late, it has been supplemented by arrangements for visiting nurses from the training schools of the Presbyterian and Roosevelt Hospitals, and the general management is now in the hands of Dr. Linsly R. Williams.

4. *Bellevue Hospital.* A few months ago it was proposed by the President of the Board of Trustees of Bellevue and allied hospitals, Dr. J. Winters Brannan, to take up this special tuberculosis work in connection with the out-patient department of these hospitals. The task of organization was put in the writer's hands, and about the middle of December last a special tuberculosis class was started in the Bellevue Hospital Out-Patient Department.

The general plan is the same as at Vanderbilt, but more adequate resources have made its elaboration possible. All the means spoken of in connection with Vanderbilt Clinic are made use of, and, in addition, arrangement has been made for the supply of milk and eggs from the hospital store, as a part of the treatment. Besides this, there are now being erected upon the hospital grounds, tent cottages for the use of such patients whom it is desirable to keep in bed, under observation, for awhile, or for whom a few weeks' training in habits, mode of life, etc., seems advisable.

Also, the close proximity of this hospital to the office of the Superintendent of Out-door Poor makes the use of the different hospital facilities at his disposal a very easy matter. The nursing

is done by the pupil nurses of Bellevue Hospital, under the direction of a head nurse with large experience in district visiting. In the medical work, able assistance is rendered by Dr. Haven Emerson and Dr. E. L. Trudeau, Jr.

I think it is no exaggeration to say that this system gives to Bellevue Hospital the distinction of sharing with the Phipps Institute of Philadelphia the honor of possessing the most adequate means of dealing with the consumptive poor in their homes that exists in this country.

5. *The Health Department Dispensary.* The Health Department has erected a special dispensary for tuberculosis, modeled after those of France. This is a separate building, with different rooms for consultation, examination, throat and X-ray work, and all the requirements for the diagnosis and treatment of such patients. This dispensary is very shortly to be opened, and in connection with it will be used all the splendid and extensive organization of this department in regard to home inspections, visiting nurses, printed circulars, hospital accommodation, etc. There will be evening classes, which will be of very great value to such patients as are able to work, and therefore cannot attend regularly at the usual dispensary hours. The promise of this institution is very great, and its usefulness and value to the community will add considerably to that of the Health Department, great as we have already seen that to be.¹

As far as I am aware, this completes the list of dispensaries in this city which attempt a satisfactory treatment of their tuberculous patients. Now that the practicability of such treatment has been established, it could easily be undertaken, in some measure, at least, by every dispensary. Just as soon as that condition of affairs obtains, the ultimate solution of our tuberculosis problem is very near at hand.

MANAGEMENT OF DIFFERENT CLASSES OF CASES.

Differences in several conditions modify this management.

1. *Stage of Disease.* Whether early, moderately advanced, or far advanced.

2. *Economic Conditions.* Such as ability to work, confinement to bed, and the resulting conditions of self-support, or complete or partial dependence upon others.

3. *The Character of Housing.* Whether in lodging or furnished room houses or in tenements; and whether these tenements are passably sanitary or totally unsanitary.

Patients in the early stages are generally able to work, and therefore self-supporting. But this work is often too arduous and very harmful to the patient. This condition of affairs should not be allowed, if possible. Change to more favorable occupation should be effected, or the patient should be sent away to some suitable sanatorium or rural hospital. These are the cases whom we

¹ At the time that this article was written the writer was ignorant of the admirable work of the Tuberculosis Clinic at the Gouverneur Hospital. This has been in operation since July, 1903.

may reasonably hope to improve or get well, and very careful assistance should be given to them, to let them at least have a fair opportunity. It is not fair to advise them to go to the country or to change their work, and then dismiss all responsibility toward them. It is generally absolutely impossible for these people to follow this advice, unless assistance be given them. This can very often be obtained from some of the charitable institutions we have considered. If they stay home, we should look after their home conditions and in some way provide extra nourishment, for this is the *treatment* of the disease, and we, as physicians, are responsible for it. It has been a matter of great surprise and encouragement to me to note how often these patients do well under the dispensary management such as we have described, and during the past year not a few cases of arrested disease have been noted.

The Moderately Advanced Cases require the greatest judgment and skill. As a general rule, they should not work. The question of hospitals immediately comes up, and Seton, Riverside and Metropolitan are the ones best adapted for these patients. The patients of this class should never be sent far away from home, unless ample provision is made for their support in every contingency. Too often, a burst of charity sends them to the Adirondacks, or elsewhere, and leaves them stranded there, an additional burden upon an already overtaxed community.

Unwillingness on the part of the patients, or lack of room in the hospitals, usually makes this method of disposal unavailable, and, as they cannot or should not work, they, with their families, must become either partially or wholly dependent upon outside assistance, in order to live. As in these cases there is still some good hope of improvement, extra nourishment and sanitary surroundings must be added to the bare necessities of living. It is in these cases that the various agencies of relief are of the greatest benefit.

Where there is any question of the actual necessity for outside assistance, the case should be referred to the Charity Organization Society or the United Hebrew Charities for investigation as to the resources, family connections, past record in habits, thrift, etc., before indiscriminate help is given. This question being satisfied, the case may either be left in the hands of one of these organizations to provide necessities and extra food, or this assistance may be obtained directly from other relief agencies, such as the Association for Improving the Condition of the Poor, the different church charities, the diet kitchens, the Straus milk depots, etc. This help should always be given, however, under medical supervision, in order that the needs of each patient may be properly supplied and in order to insure to these different societies the distribution of their help in such manner that it will do the greatest amount of good.

All Advanced Cases are better cared for in suitable hospitals, and to secure their admission

should be our first endeavor. This is particularly true of bed-ridden cases, for whom, of course, dispensaries cannot provide, and whose progressive weakness and loss of feeling of responsibility make the proper care of the sputum impossible. If such patients persistently refuse to go willingly, they should generally be referred to the Health Department for compulsory removal.

Cases not sent to hospitals must be watched carefully, especially by nurses, and distressing symptoms relieved. On account of the insufficient supply of extra food available for more favorable cases it is our usual custom to withhold this part of our treatment from cases evidently hopeless.

Differences in Housing Conditions affect the management of all three classes of patients. Light, clean, well-ventilated tenements can readily be converted by an intelligent nurse into very fair home sanatoria. When such homes are found, it influences considerably the decision upon the necessity for hospital care.

Unsanitary tenements, however, must not be so used. Either the family must move to more favorable quarters or the patient must go to a hospital or sanatorium. The moving may be effected by financial aid from the Charity Organization Society, the United Hebrew Charities or the Association for Improving the Condition of the Poor, when such assistance is necessary. If any violations of law exist, they should be reported to the Tenement House Department, and the Health Department should be notified of the removal, in order to disinfect the premises.

Lodging-house cases and many furnished-room cases may be removed to hospitals by authority of the Health Department, and this should be done. It is impossible to exercise any supervision over such cases from the dispensary. They come back for observation very irregularly, the nurse cannot find or follow them, and therefore home instruction is impossible. These patients, floating about from one lodging-house to another, with no fixed abode or sense of responsibility to their fellows, constitute one of the most prolific causes of the spread of this disease, and one that it is impossible to counteract, as long as they live under such conditions. The welfare of the community demands and justifies their compulsory removal and retention in suitable hospitals.

This completes our review of the possible methods of management of these cases of tuberculosis among the poor. My ideas concerning our responsibilities, as physicians, toward them are already apparent. We must treat these patients properly, and follow up this treatment to its logical conclusion.

To tell them to go to the country is simply a waste of breath. To simply prescribe medication, is to give a "stone," when their need is for "bread." To advise fresh air, good food and light work, without providing these things, is a hollow mockery.

The proper treatment of these cases involves,

as we have seen, a great expenditure of time, thought and skill, in directions including the entire social, as well as physical condition of the patient. The dominating control of all phases of this treatment should not be delegated to any charitable society, but should lie with the patient's physician. In order to hold this effectually, this physician must study and understand all the underlying conditions, which we have seen to be much more complex than simply those of physical signs and medication.

It is true that there is great advantage to be derived from better knowledge of the social aspects of any disease, but in none is this knowledge so essential, or its application so remunerative, as in tuberculosis. Thinking men of experience are coming more and more to the agreement that, under proper conditions and proper management, tuberculosis is a preventable and curable disease in any climate, even in that of the City of New York; and to any who care to study and to understand this disease, the prospect of success seems brighter than in any other of the great problems of preventive medicine of to-day.

It would be impossible for anyone to study this tuberculosis problem without being deeply impressed with the tremendous influence that has been exerted upon it for several years by the untiring efforts of two men. These men are Dr. Hermann M. Biggs and Dr. S. A. Knopf. In every phase of a most difficult struggle they have stood together, and often alone, with both profession and laity combined against them. But, by steadfast adherence to their firm convictions, they have accomplished many of their ends, and in so doing, have placed this whole community under a lasting obligation to them.

I cannot more fittingly close this discussion than by expressing the sincere wish that at least some of the spirit of their energy and enthusiasm in this vital question may be infused into each one of their fellow-practitioners here present.

The writer wishes to express his indebtedness for much information to the officers of the various institutions here considered and also to "A Circular to Physicians," issued by the Health Department, "A Handbook on the Prevention of Tuberculosis," published by the Charity Organization Society and *The Tenement House Problem*, edited by DeForest and Veiller.

350 Park Avenue.

The Action of Nicotine.—In studying the nicotine tolerance in rabbits, R. A. HATCHER (*Am. Jour. Physiol.*, April 1, 1904) found that this poison is very uncertain in its action. While death is due to failure of respiration, artificial respiration, if effective at all, must be begun before the centers show evidence of marked depression. The stimulating effects of heat are undoubtedly useful in combating the toxic effects. No cumulative effects can be seen when nicotine is given daily for several days. Nutritional disturbances follow its prolonged use, by the appearance of ulcers at a point some distance from the seat of injection, disappearing with the cessation of its use, and reappearing upon resumption. No antitoxic serum has been found.

A REMARKABLE CASE OF GASTRIC CANCER: SEPARATE INVOLVEMENT OF CARDIA AND PYLORUS: GAIN OF 35 POUNDS IN WEIGHT WITHIN THREE MONTHS OF DEATH.¹

BY G. W. M'CASKEY, A.M., M.D.,

OF FORT WAYNE, IND.

THE following case presents features which appear to render it worthy of a separate record as it has a bearing on some interesting questions relative to diagnosis. The case is included in another paper reporting six cases of cardio-esophageal cancer.

The patient, Mr. G., aged forty years, was referred by Dr. James Wilson, of Wabash, Ind., February 7, 1902. He gave a history of "stomach trouble" of about one year's duration. The first symptom was pain after eating in the region of the stomach, also in the back between the shoulders especially in the right side. A few weeks later he began to have excessive gas formation in the stomach, both this and the pain being most aggravated almost immediately after eating. This second symptom had been persistent but rather worse for the six weeks preceding my examination. He had vomited only a few times, and this had never been in close relation to meals.

Five months after the beginning of the symptoms, he had a severe attack of "gastralgia" following dietetic indiscretion, and from that time on the pain was more troublesome. It was also more severe when the patient was on his feet, especially if exercising much, and lying down at night would give relief. There was a tendency to constipation but never any sign of melena; he was greatly troubled by intestinal gas. His normal weight was 220 pounds, but he had lost about 45 pounds.

Upon physical examination the liver was found to be slightly enlarged, rather firm on pressure, but not tender and quite irregular on the margin. The stomach was not enlarged. Examination otherwise negative. Test-meal revealed the absence of free hydrochloric acid but strong biuret reaction; lactic acid was present, but no *Oppler-Boas bacillus*. Uranalysis gave no important indications except in the presence of the ethereal compounds of skatol and indol. Later in the case, in June, before my last examination, there appeared a little albumin and bile acids.

The blood examination showed 15,000 leucocytes at the first examination, and 10,000 a week later. The blood was concentrated containing 6,000,000 red cells upon first examination and 5,500,000 on the second with about 110 per cent. of the normal amount of hemoglobin. There was a slight mucous colitis.

It is perhaps worth noting that the patient had grip three years previous, and "walking typhoid" two years prior to examination, and had not been perfectly well since the last mentioned illness.

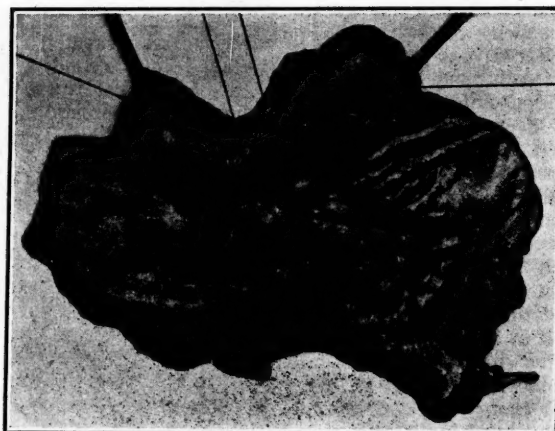
¹ Read before the Allen County (Ind.) Medical Society.

The patient was under my personal observation and treatment for a few weeks, and the stomach conditions improved somewhat, a little free hydrochloric acid appearing once or twice. A few weeks later the stomach symptoms suddenly left him, his appetite became morbidly voracious, and he ate with impunity enormous quantities of meat, bread, potatoes and other solid food, and in three weeks his weight increased thirty-five pounds. There was no dropsy at that time and the phenomenal increase of weight was clearly due to tissue building of one sort or another. The gain did not last, however, the stomach symptoms recurring in three or four weeks; a little later marked jaundice supervened; still later, about four weeks before death, which occurred in November, five months after my last examination, general dropsy developed.

The disappearance of stomach disturbance, the voracious appetite and the rapid increase of weight are certainly remarkable phenomena in the case of a patient who died of cancer some three months later, as the autopsy showed that there must have been considerable involvement at that time of both the stomach and liver. It would constitute a disturbing factor in the diagnosis if such a case would present itself during the progress of such phenomena. While I did not see the patient during or after this occurrence, I inquired closely concerning the patient's appearance, and I am informed by his attending physician that along with the increase of weight, rotundity of form, etc., there was not a corresponding approach toward appearance of health. This, from a diagnostic point of view, is a saving clause.

Fig. 1.

2 3



1. Pylorus; 2 and 3. The space between these lines was not indurated, and was apparently free from involvement, although the shading in cut tends to give a different impression; 4. Cardiac orifice.

At the time the patient left me, I had expressed to Dr. Wilson a strong suspicion of cancer and was considering the advisability of recommending an exploratory procedure.

At the autopsy, which was made by Dr. Wilson, the liver was found to be markedly enlarged with a diffuse carcinomatous process, while the stomach was apparently normal, excepting in the pyloric and cardiac regions where it was much thickened by neoplastic formation. The middle part of the lesser curvature was almost, if not entirely free from the morbid process for perhaps an inch or thereabouts, the pyloric and cardiac neoplasms gradually shading off in thickness toward this point. Sections of the neoplasms showed typical adenocarcinoma. The stomach, which was removed entire and sent to me by Dr. Wilson, was apparently normal in every other respect, and was not greatly enlarged, its capacity being 1,200 c.c.

In reviewing the case in the light of the autopsy, it would appear probable that the cancer of the liver was the primary process, the preponderance and priority of pain in the hepatic region, while not very marked tends to support this view of the case. On the other hand, it is quite possible that the gastric cancer was primary though very slow in its evolution and that the liver was the last organ implicated. Anatomical and physiological considerations tend to support this view, as the movement of fluids by which metastatic processes occur does not take place from the liver to the stomach, but from the stomach to the liver. The accompanying cut indicates the area of carcinomatous invasion, and so far as I know such a distribution is rare.

Hahnemann Medical College.—The fifty-sixth annual commencement was held May 21, a class of 66 being graduated.

POSTPARTUM TUBO-OVARIAN ABSCESS CAUSING HYDRONEPHROSIS.¹

BY A. ERNEST GALLANT, M.D.,
OF NEW YORK.

THE case from which the specimen herewith presented was removed, afforded several points of unusual interest, not only from a diagnostic standpoint, but also in relation to its mode of development, the plan adopted for its removal, the after-care and rapid convalescence.

1. The advent of labor was announced by rupture of the membranes, inefficient pains; manual dilatation of the cervix, and final delivery by high forceps; child strong and healthy.

2. Rising temperature on fourth day, with no vaginal evidence of infection.

3. A rapidly forming tumor developed on right side during seventh and eighth days, pressing on ureter, causing hydronephrosis with marked diminution of urine, and thought to be due to a prolapsed kidney.

4. No relief by posture. Aspiration at first of clear urine, followed by pus, tumor diminished in size to one-half, and passage of 64 ounces of urine during next twenty-four hours.

5. Cystoscopy showed bladder somewhat inflamed, clear urine from both ureters.

6. Tumor refilling; increasing pulse and respiration deemed good reason for operation. Through lumbar incision, splitting the muscles, a flattened kidney was made out, and an intraperitoneal tumor dissected from the undersurface of the liver and diaphragm; attached below by a broad pedicle to the pelvic brim. Not wishing to elongate the lumbar incision, the tumor was emptied through a two-inch median incision, and proved to be a tubo-ovarian abscess.

7. Massage begun the day after operation, and continued daily; pulse, temperature and respiration fell during anesthesia and never rose above 99.5° F. afterward. Primary union throughout. The patient was out of bed on the fifteenth day, and rapidly regained her former strength.

8. The application of a specially designed corset, for the prevention of hernia and visceral prolapse. Also gauze vaginal tamponade of the vagina after the uterus had entered the pelvis, to assist that organ in resuming its proper relation to the bladder and the prevention of uterine displacement.

Mrs. E. M., September 13, 1903. Premature rupture of membranes, manual dilatation of cervix; high forceps; living child.

September 17, fourth day, post partum, Dr. Moss reports temperature 102° F., lochia normal, uterus contracted, not tender. Cannot account for fever.

September 21, eighth day, Dr. Moss reports that during past two days a tumor has been rapidly forming on the right side, bulging the anterior wall forward. Temperature 102° F., pulse 128. Examination shows a moderately

tense, fluctuating tumor, extending from under the ribs, to the pelvic brim of the right side, also causing bulging in the right loin. Cannot be felt through vagina. Lochia stopped; no discharge, no odor; uterus on level with brim, moderately firm, os externum gapes, lacerated into right fornix; left fornix soft and pliable. Urine markedly diminished, 19 to 20 ounces during past twenty-four hours. Diagnosis: Hydronephrosis, probably due to prolapsed kidney. Foot of the bed elevated, in hope of relieving retention. Bladder irritable.

September 22, ninth day, post partum, trocar introduced just below twelfth rib in anterior axillary line, and clear urine dribbled away; trocar reintroduced a little lower and posterior, half its length, and about 24 ounces of clear urine of a very dark, smoky color came away; trocar pushed in full length, with pressure, was followed by five to six ounces of pus, and reduced the tumor to one-half its former size. During the following twenty-four hours, 64 ounces of urine were passed, sp. gr. 1.012, normal color.

September 23, tenth day, post partum, cystoscopy: Bladder interior somewhat congested. Several small congested areas on lower and posterior surface, attributed to the catheter, which had been used during the preceding week; clear urine from both ureters; right ureteral opening edematous. 1 P.M., 26-90-98.4; 9 P.M., 24-94-99.

September 24, 8 A.M., 26-94-99; 8.30 P.M., 30-108-99.

September 25, twelfth day, post partum, 6 A.M., 30-110-98.2; 12 N., 30-120-99.2.

Dr. Moss reports tumor refilling, and on account of increasing pulse rate and rapid breathing it was decided to operate for the removal of probable pyonephrosis, with kinking of the ureter.

Operation began at 3 P.M., Dr. E. W. Peet assisting; Dr. Plympton administering ether. Patient on kidney bag; an oblique incision was made from the edge of the twelfth rib to the anterior superior spine; the muscles split layer by layer; the twelfth nerve pushed aside, and after tearing through the fatty capsule the kidney was found well up above the twelfth rib, firmly fixed in its normal position, moderately enlarged, and flattened, being only about half as thick as normal. Further examination showed the tumor to be wholly intraperitoneal; the peritoneum was opened, the tumor, by blunt dissection, separated from its attachment to the under surface of the liver and diaphragm posteriorly; and when free settled downward and inward in the abdominal cavity. On following it down it was found attached to the pelvic brim by a broad pedicle which could not be reached through the posterior incision without extending it through muscles. I preferred to close the lumbar wound, and then made a two-inch median incision just above the pubis; drew the tumor to this opening and drained off more than two pints of pus; delivered the sac, which was then recognized as attached to the right broad ligament,

¹ Presented to the American Urological Association.

and involved the tube and ovary of that side. The stump was sutured; dropped back, and the median wound closed. Ether 1 hour 40 minutes, operation 1 hour 29 minutes. Highest pulse 140, at close of operation 112. 8 P.M., 30-108-99.

September 29, fourth day, sutures removed; primary union throughout.

October 10, fifteenth day, out of bed one hour.

October 21, nurse discharged. October 28, corset put on.

NOTE.—April 21, 1904. Dr. Moss reports that the patient's health has been excellent; and, excepting some irregularity of menstruation and a sense of stiffness and soreness in the lumbar region on lifting, is as well as can be. Advised to resume calisthenics daily.

60 West Fifty-sixth Street.

ETHYL CHLORIDE AS A GENERAL ANESTHETIC.¹

BY A. F. ERDMANN, A.B., M.D.,
OF BROOKLYN, N. Y.

PROBABLY most American anesthetists and surgeons share the experience and opinion of the writer of a paper on surgical anesthesia (*Journal American Medical Association*, Dec. 5, 1903, p. 1400) who says, "My experience with ethyl chloride as a general anesthetic is *nil*, but from the data at hand I am inclined to class it with the more dangerous anesthetics, and would expect it to be especially dangerous in cardiac and respiratory troubles." It is certainly true that an astonishingly small proportion of such practitioners are at all familiar with this most valuable anesthetic agent. The writer, after diligent inquiry, has been able to find only one surgeon in Brooklyn who is really using it. In Manhattan there are only a few more. In Philadelphia it is used at the University Hospital. Cumston in Boston has now made use of it in 350 cases. Allen at the Massachusetts General Hospital has employed it in about 60 cases. There is a report of its use in the Medical Association, Chicago, 1900, xxxii, p. 710. Nor as yet have the English surgeons generally taken kindly to ethyl chloride. But on the continent, in France especially, many are turning from both nitrous oxide and bromide of ethyl to this recently anew exploited systemic anesthetic agent.

This anomaly appears still more strange when one considers what claims are made for ethyl chloride, and upon what facts the French, Swiss and Germans base their good opinions. In a word, it is maintained that ethyl chloride is a relatively safe general anesthetic, exceedingly simple in its use, particularly pleasant to inhale, surprisingly rapid in both its action upon the body and its escape from it, and happily much less liable to those unpleasant sequelæ, both serious and simple, which so often follow other anesthetics. The fact that some 30,000—estimated—anesthetics have already been given should be

enough to ensure it a favorable attention, and when one considers in addition all the operations for which it has been successfully used he is less surprised that some anesthetists do, and more surprised that some do not make use of ethyl chloride. Ware,¹ of New York, for instance, has employed it 2,000 times, chiefly in minor surgery on women and children. Mazzoni² (Rome) has done laparotomies and a vaginal hysterectomy. Malherbe³ (Paris) tells of a mamnectomy and a herniotomy where ethyl chloride was used. In Birmingham⁴ they do operations for strabismus under its influence. At Guy's Hospital⁵ iridec-tomies are not uncommon. *La Presse Médicale* June 29, 1901, reports enucleations and operations for muscular advancement where it was used. At Innsbruck⁶ they had no bad results in employing it with patients having heart lesions and respiratory affections. The pulse remained normal in a case of marked mitral obstruction reported by Nové-Josserand.⁷ This same surgeon operated in the presence of advanced phthisis. The Swiss surgeon, Bossart,⁸ reports similar cases. Patients have been cyanotic and dyspneic, requiring tracheotomy. Reboul⁹ tells of a child four and a half years of age, extremely feeble after a prolonged typhoid fever, in whom some abscesses were opened. A number of patients had a temperature of over 39.5° C. and some were suffering from emphysema and arteriosclerosis. An operation was done during the seventh month of pregnancy. A number of interesting experiences in midwifery are described by Lepage and Lorier,¹⁰ and by Burnet (*The Medical Press*, December 10, 1902). I have myself had excellent results in forceps cases.

A lad, ten years of age, took it in all 33 times; another boy, twelve years of age, 12 times, and a woman of fifty-six years took it ten times.⁸ In neither an infant of three months nor a patient of seventy-nine was there any untoward symptom. A child² three years of age was given 120 c.c. during an operation for an impacted urethral calculus which lasted over an hour. What a list! Again and again the reporters say that there was no alarming symptom or that there was not the least cause for alarm. In *Guy's Hospital Gazette*, April 11, 1903 one reads, "In the presence of grave hemorrhage the ideal anesthetic is A. C. E., or Kelene followed by A. C. E."

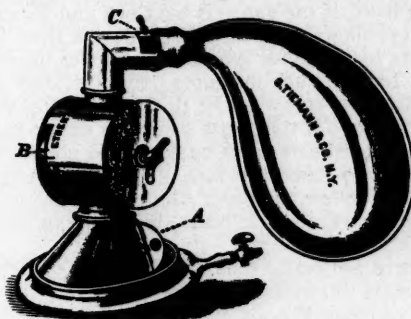
Perhaps one of you will now be willing to let me use ethyl chloride for one of your cases. Maybe it is an office case: an abscess is to be opened, or a vaginal examination is to be made under anesthesia. Of course it is best that the patient has not eaten just previously; yet if she has and vomiting does occur it will probably be only slight and transient. Clarke (Brooklyn) says his patients have never vomited. Ware's hour at the Good Samaritan Dispensary (New York) is in the early afternoon and he anesthetizes his patients as they come, even just from dinner. Perhaps the patient objects to lying down, or may be the operation is to be a tonsil-

¹ Read before the Associated Physicians of Long Island, January 23, 1904.

otomy or other throat operation and the Rose position is not desired; you may have him anesthetized sitting in a chair, if you wish that position, and know that this is a common practice. But it will be prudent to have him on his back. A syncope is reported from Wolverhampton when the patient sat up during an operation. McCardie⁴ (Birmingham) and a French dentist had similar mishaps. It will be wisest to observe the ordinary precautions which are taken in any anesthesia.

One is now ready to choose an inhaler. But this is not such a simple matter, for there are many of them. It may be a plain gauze compress, costing next to nothing, or an elaborate so-called "Minimum," which is sold for 120 M. It may be comparatively open, as Ware's model, or tightly closed, as the "cornet" used by Fromaget¹² or the cornucopia described by the author in his paper, *The actual Schleich narcosis* (*Brooklyn Medical Journal*, June, 1899). Or it may be one less closed, as some form of the Clover¹³ or Ormsby bag apparatus, or less open as the Breuersche Korb,¹¹ after whose design Kny-Scherer are making an American model. Between these extremes there are many others. The Schönmann as well as the Seitz, universal mask; Brodtbeck's celluloid mask with an iris diaphragm. Juilliard's large ether mask has been used. For mixed anesthetics a serviceable form is this simple modification along well-known

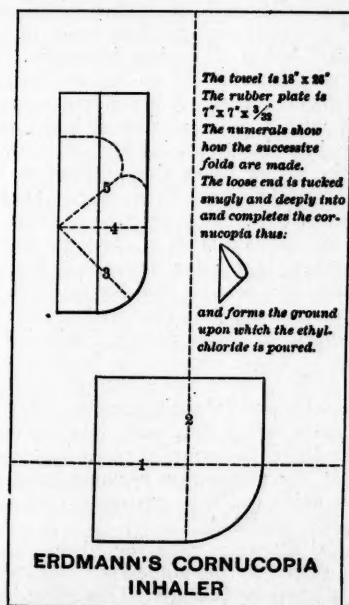
The gauze compress and the towel cornucopia are simple and clean, and save the ethyl chloride; but they, as well as the English bag apparatus—with these would have to be included the several American models which are just as good—necessitate an essentially close method. The Breuer form is a good one, but the construction of the



valves forbids cleansing and, besides, it is as yet a very expensive apparatus. The author prefers Ware's¹⁴ mask, because it is simple and inexpensive, gives plenty of air and can be readily cleaned. However, when the patient can bear a more concentrated vapor, the most brilliant results are obtained with a "close" mask. This is especially true in obstetrical work when the patient must be eased quickly yet transiently. I have had great satisfaction on several occasions in noticing how promptly the pains were relieved and how very wide awake the patients were during the intervals.

Of the half dozen preparations of the ethyl chloride which can be purchased only two are as yet generally used. Probably unless the author specifies, that form known as Kelene is always meant. Kelene is the trade name for the product of the Société Chimique des Usines du Rhône. The Monnet tube in which it is put up is convenient and enables the anesthetics to follow easily Ware's direction to "spray intermittently." Dr. Henning, in Berlin, manufactures a most excellent product which is known as "aetherchloratus narkosi," or simply as Henning's ethyl chloride. This can be obtained as yet only in a container which cannot well be inverted. The small tubes which Henning makes containing only 3 to 5 c.c., ought to be very handy for one who prefers the close method and mass doses. These others, Antidolorin and Anodynone, have been used so far as I can learn only by Cumston, who reports favorably upon them in an excellent article in the *Boston Medical and Surgical Journal*, January, 1903. Clarke (Brooklyn) uses the Bengué product. Any pure ethyl chloride can be used. The author does not mean to say that only the two prominently mentioned are pure forms, but merely reports what he has noticed in his investigation, that they with the Bengué product are considered to be the best.

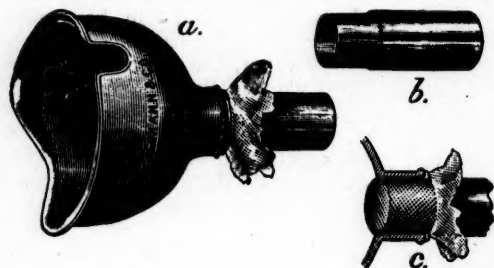
Ethyl chloride is decidedly pleasant; it is



lines of the Allis inhaler (*Medical Record*, Jan. 23, 1904). Since this paper was written I have seen Goldan's (N. Y.) apparatus. The ethyl chloride is confined on gauze in a tube between valves so that there is at once an "open" method of administration and an absolute prevention of waste.

neither cold nor pungent, does not cause any choking or coughing and only in a very large dose might it cause one to hold the breath. Sometimes if the gauze in the Ware mask is not thick enough some of the spray will fall upon the face and cause the patient to shrink. But this is only a momentary unpleasantness and can be entirely avoided by care in preparing the mask. On the other hand, if the gauze is too thick and the capillary opening in the tube large then a hoar frost readily forms on the gauze and occludes the opening. In both such instances one must know how to adapt the spray to the thickness of the gauze diaphragm. If the gauze compress or the cornucopia is used care must be exercised not to allow the fluid to touch the face. That it is comparatively harmless, however, the author knows, for he once sprayed a drop into his own eye without any injury resulting.

There are really only two methods of exhibiting ethyl chloride and these differ only in this, that whereas Ware's apparatus allows the anesthetist to give it drop by drop, as it were, and thus suit the amount to the patient—to individualize the patient—all other forms are meant to re-



ceive a mass dose, on the assumption that $2\frac{1}{2}$ c.c. is the smallest amount which will narcotize any one. Some operators give 5 c.c. or even up to 15 and 20 c.c. at once.²⁵ I cannot feel that this is a wise procedure. If one follows Ware's method he will probably find, unless he is unusually proficient, that he will take a longer time and use more of the anesthetic than when a close method is followed. But he may feel that he is working along more rational lines and because he is better able to treat a patient's possibly greater susceptibility, he can give more accurate doses and will feel safer. After a few inspirations the pulse rate may become somewhat heightened. Usually a rapid pulse continues such; a slow one may be accelerated. Many times there is no change whatever. It is thought by some that the acceleration is due to a too highly diluted vapor, and that the patient becomes nervous because he does not go under fast enough. The tinnitus aurium and sounds of whistling and hammering which may be present at this early stage might easily excite persons already apprehensive of danger. Or, again, a dose relatively too large may send the pulse up. Dumont in particular, calls attention to this. All observers agree with McCardie⁴

that the pulse may be disregarded so long as the respirations remain full and strong.

Is there any arterial hypotension? H. C. Wood (University of Pennsylvania) in the 1892 *Dental Cosmos*, basing his opinion solely upon some animal experiments, said there is always a fall of the blood pressure due to a direct depression of the heart. But he used an admittedly concentrated and suffocating dose, and induced some of the anesthetics even by injecting the ethyl chloride directly into the jugular vein. König¹⁵ records the same effect but does not consider it to be so marked and ascribes it especially to a concentrated vapor; and even then he found it less true of the monkey than in dogs. Malherbe and Rubinovitch¹⁶ using the Potain sphygmomanometer on 24 human subjects also sustain these findings: in 22 instances there was arterial depression and the number of the heart beats increased apace with the lowered tension. Ruegg¹⁷ of Basle maintains that a dilute vapor dilates the blood-vessels while a concentrated vapor contracts them and increases the heart's action. The weight of clinical observation is against these deductions from animal experiments. The heart is not usually affected; if it is, the temporary change may be ascribed to the causes already mentioned and quickly ceases when the anesthetic is stopped. Rose¹⁸ (Bristol) did not find any variation worth recording in the four anesthetics to which a woman submitted whose heart sounds were observed by a loud double mitral murmur. Bossart⁹ (Aaran) reports three cases of compensated heart lesion all acting favorably. Hacker (Innsbruck) says he had no bad results in a case of fatty degeneration. It is a common experience to begin with a pulse at 120—I had one at 132—and find no change during a short operation.

But the effect upon the respiration is more marked even from the beginning. There is no irregularity, but a deepening of the thoracic excursion, an augmentation of the force and usually some increase, a regular increase in the rapidity. But it does not become shallow or slow. Sometimes a soft snoring is observed. Several cases are reported of a temporary inhibition of the breathing. These may have been true apneic pauses, or have been due to atonic spasm of the chest muscles or of the diaphragm. They quickly passed away when the mask was removed. In the main Nové-Josserand's⁷ observation will hold true, that the respiration remains calm, regular, deep, sometimes a little stertorous, but is usually not greatly modified.

Especial attention must be directed to a frequently observed phenomenon. If the patient begins to snore he is ready. This effect is so commonly produced that McCardie counts it as one of the cardinal signs of a fully established anesthesia. If in addition to this the muscles are relaxed and the conjunctival reflex is lost, while the pupil is moderately dilated and the eyeball is turned to one side, then it is only time lost to delay any longer.

Yet it is not necessary to wait for all of these

signs. Sometimes there is not complete muscular relaxation, nor are the conjunctivæ always insensible. There may even be contracture of the muscles somewhat as in the cataleptic state. When this occurs Seitz¹⁹ (Constance) says it is a true second stage and corresponds to that brief moment in an ether anesthesia which is called the *aetherrausch*, and like that can be utilized for a short operation. The patient is not really anesthetized as we use the term, but he has been *analgesized*, if I may coin a word, he does not feel the pain although he may resist the attempt to operate. I have had several cases which illustrate this. One was a simple perineorrhaphy. The patient consumed more Kelene than I had expected, so that just as she was ready—cataleptic—the anesthetic tube was emptied unfortunately. I thought that the stitch could be taken anyway, but as she squirmed some when the needle touched her, it was thought best under the circumstances not to persist. I was greatly chagrined when she said a minute later that she had not felt any pain whatever. The other case was even more pronounced. Suffice it to say that an infected finger was opened while the man was struggling. When he regained consciousness he had no recollection of any pain. He said he felt that something was being done to his finger but he did not know what.

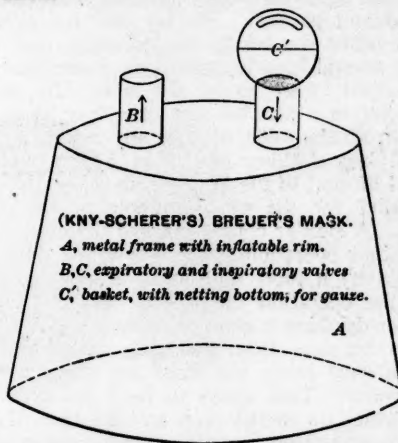
It is a common practice to exhibit the ordinary dose ($2\frac{1}{2}$ to 5 c.c.) after a "close" method and to operate after a few minutes even if the patient seems to feel. If once the breathing has become rapid, especially if snoring in character, the pupil moderately dilated, and the patient has made purposeless movements or has stiffened the whole or a part of his body, he is insensible to pain and the short operations may be done in good conscience. One will find that in a complete anesthesia the muscles do relax sufficiently to permit operations in which this condition is required. A study of the operations already reported, laparotomies, amputations, the reductions of old dislocations and others shows that such must be the case.

Yet sometimes the muscles will not relax sufficiently, or there is too pronounced a stage of excitement. Ware (New York) reports 5 per cent., Girard²⁰ (Toulon) 6 per cent. of failures. Reboul had to change the anesthesia in five instances. McCardie records some failures with the Breuer mask, but says that he is able to anesthetize any one, even an alcoholic, with the Ormsby inhaler.

Nervous patients usually make some erratic motions or cry out incoherently. Alcoholics are notoriously bad subjects for any anesthetic, and ethyl chloride is no exception. Yet it does seem that they struggle least when that is used or even not at all, and they can be quieted absolutely if a preliminary hypodermic injection of morphine is given. Even if there has been excitement and struggling they seldom are aware of it afterward as being caused by the anesthetic. They remember it as from a dream. Sometimes the dreams are very real. A patient of the author laughingly said he had imagined he was being assaulted by

two robbers and that his struggles were to free himself. This was a near approach to the nightmare of which some occasionally speak.

Much more usual is the experience of passing through pleasant scenes and enjoyable occasions. Girard²⁰ tells of a young woman who both asked and answered questions during the course of the operation. Strangely, upon awakening, she recalled only a vivid dream of having been transported far away into and through deep woods and flower gardens. He also interestingly narrates his own experience. He dreamed that he was visiting again some Alpine mountains and beheld a marvelously beautiful sky and sun. When he awoke after the short operation he sat up on the table rubbing his hands, surprised at his position and disbelieving that the operation had been done. He was able to get down without any assistance; had no unpleasant feelings except a pasty taste and was able to direct a scheduled operation.



There would seem to be some reason for taking the precaution of having a third party present when anesthetizing women, for two anesthetists have already been accused of having made criminal assaults. It is not indeed very unusual, when the operation is upon or about the genitals, to notice that the dreams seem to be of an erotic nature. In a recent case the author observed an annoying priapism. A report is made of another such instance in which even the orgasm took place. These are comparatively rare observations, to be sure, and are mentioned only that they may be expected.

Whatever the character of the unconscious or subconscious state, or however much the patients speak or move one does not have to fear the rebuke not infrequently heard after a gas anesthesia, that the pain was all felt but the power to manifest it was absent. Once under the anesthetic the sense of pain has disappeared, though the tactile sense may remain. A curious fact is that this analgesia continues for some time after consciousness has returned; it may be even for ten and twenty minutes.²¹

The awakening is rapid, sometimes within a few seconds after the mask is removed, and generally, according to the quantity of the anesthetic inhaled. It is a return to full consciousness. The eye is wide open, the senses are active, there is neither dulness of hearing nor a dimmed vision, the aspect of the face does not indicate the presence of an anesthetic; there is no odor on the breath, perhaps a pasty taste which a swallow or gargle of water quickly removes, rarely a headache and vomiting is less frequent than after either chloroform or ether. In dispensary practice the child begins to cry after a few breaths, a slight shake rouses it completely, the mother picks it up and by the time it is dressed the mother can take it home.

An interesting and typical case which I saw at the Good Samaritan Dispensary, New York, a few days ago was that of a middle-aged woman who had been anesthetized for about five minutes while an ugly mammary abscess was opened, cleaned and packed. She lay still for about a minute after the mask was removed, and then taking several long breaths opened her eyes and was helped to sit up on the table. She looked about her in a puzzled sort of a way, then slid down from the table without any assistance, arranged her clothing and after a few minutes walked around to the surgeon showing and asking relief for the eroded nipple of the other breast. A similar course marked the completion of a minor operation at the Norwegian Hospital (Brooklyn) a short time ago. A few moments after the operation the patient was out in the corridor drinking a glass of water.

This freedom from annoying after-effects is seen in most cases, but there are some patients who vomit. This seems to be a misadventure from which no anesthetic is entirely free. However, the vomiting is neither severe nor of long duration. Some observers have never seen it. In a personal communication from the Massachusetts General Hospital, Allen says he sees nausea and vomiting in many cases; Rose (Bristol) says in two per cent., Bossart (Aaran) twelve per cent., Cumston²¹ (Boston) twenty per cent., Girard (Toulon) thirty-nine per cent. McCardie says it occurs more often with ethyl chloride than after nitrous oxide, less frequently than after the so-called "heavy" anesthetic agents. The amount of the anesthetic used is doubtless a determining factor.

This is also true of any effect upon the liver and kidneys. Gaudiani² found albumin after a long operation; Nouvé-Josserand⁷ only when much ethyl chloride had been used. Reboul⁹ did not find any albumin at all. Dumont¹¹ says König did not find any. Girard²⁰ and Malherbe found both albumin and bile pigment. Seitz did not observe any adverse changes even in a patient with an amyloid kidney. Another author makes the sweeping assertion that neither dyspeptics, nor hepatitics, nor nephritics, are in any way injured by ethyl chloride.

The skin does not give many signs. Cyanosis

is exceedingly rare, even with a "close" method, and depends entirely upon mechanical causes. There is no pallor; on the contrary the tendency is to a dilation of the superficial capillaries of the face and the upper trunk so that a slight erythema is sometimes noticed or even a pronounced rash. A warm moisture is frequently observed both during and after the anesthesia. This external vascular movement has led Girard²⁰ to assume a similar determination of the blood to the brain and medulla. If this assumption can be established it will give rise to a comforting optimism that the vital centers are in no danger from anemia.

But the effect of ethyl chloride upon the vital centers and brain is not yet unequivocally determined. However, a particular observation which is especially emphasized, is its evident and pronouncedly selective action upon the dissociating brain neuroglia—hence the early incoordination of both movement and perception. If now, according to Schleich's theory²² of the varying degrees of resistance to any anesthetic of the several cortical layers, in accordance with which it is supposed that the nerve cells are least affected in the lower cerebral planes, and that the purely vegetative or automatic functions are governed by the lowest strata of the brain substance, then one would feel like believing that because ethyl chloride acts so rapidly upon the upper portions it does not need to be pushed so far as to deeply affect the older and more resistant areas of the purely organic functions of the brain. Besides this, the motor ganglia of the cord seem to be peculiarly resistant or may be even stimulated so that a more or less continued tonic spasm of the voluntary muscles is present to some degree all through the course of an operation.

In noting his observations of the effect of ethyl chloride upon the heart Nové-Josserand is inclined to believe that some heart depression which was manifested was due to vagal stimulation, for this, he says, ceased upon section of the vagus. Girard, on the other hand, after numerous experiments, is very emphatic in his opinion that the "moderator center is really inhibited" as it were, and adds: "We insist upon this important fact—a fact the value of which experience has proven—that a secondary cardiac syncope ought not to be feared in the course of an established anesthesia." Since Girard also denies any irritation of the trigeminus, it will be seen that he also does not fear any reflex heart failure in the beginning of the anesthesia. Seitz, however, having seen some unpleasant interferences with the respiratory rhythm is afraid that the sensory fibers of the trigeminus might be irritated enough to cause a glottic spasm, and that if there were any impairment of the coronary arteries, the resulting increase of the intrathoracic pressure might close them and cause death. He is the only one, by the way, who expresses this fear, and even then he limits his objections to the use of Kelene. Henning's preparation he finds to be much less pungent and irritating. I must say that I cannot

smell any difference; to me neither is in the least degree unpleasant.

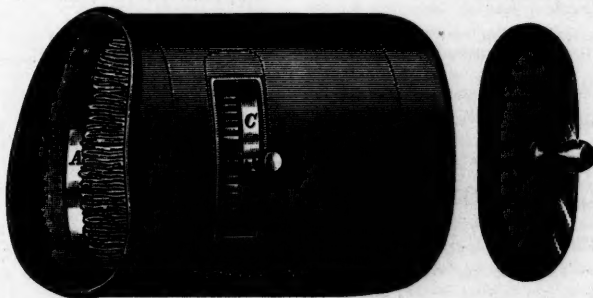
So ethyl chloride may be dangerous. To be sure, it is only relatively safe. And yet, according to present statistics it is the least dangerous of all anesthetics, excepting only nitrous oxide. Most of the half dozen deaths which are reported have been unjustly charged against it. Lotheissen²³ (Innsbruck) has looked into all the records and has this to say: "The anesthetic in Soulier's case was not ethyl chloride (C_2H_5Cl) at all, but ethylen chloride ($C_2H_4Cl_2$). Zeitz' (Zürich) death occurred sixteen hours after local use. In another instance ether for forty-nine minutes followed a one minute exhibition of ethyl chloride. McCardie's (Birmingham) case was that of a very debilitated patient who died an hour and a quarter after regaining consciousness. The autopsy showed nephritis, chronic adhesive peritonitis, pleuritis, and a fatty liver. Surely a bad case for any anesthetic. Bossart's case also was contraindicated for general anesthesia. A tracheotomy was to be done upon a cyanosed child to relieve the dyspnea caused by laryngeal diph-

And now, in closing, a few cautions, a consideration of suggested contraindications and a recapitulation of the course of the narcosis.

The ethyl chloride must be chemically pure. The mask must fit the face snugly. As little as possible should be given—a half a dram is a good initial mass dose. Mauretta²⁶ gave up to three and four drams without ill effect, but the general opinion is against such practice. A graduated container must be employed, else the dosage is uncertain. Other rules every anesthetist knows: to watch the eyes, respiration and pulse; to insist upon quiet in and about the anesthetizing room, and to avoid an open flame.²¹

Only two contraindications have been suggested. If the laryngeal aperture is abnormally small, lest it be aggravated to a stenosis by an irritating vapor. If any kidney disease is present. But Girard alone suggests this danger. It is not commonly held that the kidney suffers any harm.

Ethyl chloride is a safe, pleasant, rapid systemic anesthetic agent. The preanesthetic or short analgesic stage continues for only a fraction of a minute, and is followed by a condition



theria. Lotheissen's own case in 1901 was an alcoholic, forty-one years of age, who died within three minutes after the anesthetic was begun and after only about 5 c.c. had been sprayed into the Brewer mask. The case has been widely discussed. The necropsy revealed fatty degeneration of the heart and marked coronal sclerosis.

The December, 1903, *American Journal of the Medical Sciences* reports a death at the University of Pennsylvania Hospital. The man did not die from the effect of the anesthetic. He vomited an enormous quantity of an almost clear watery liquid for about three minutes without any retching or inspiratory effort. When vomiting finally stopped he was dead. Lotheissen's death was probably due to an initial irritation of the trigeminal fibers, and in McCardie's case the anesthetic, if not the sole cause, was yet a factor. Since at least 25,000 anesthetics have been given—30,000 is more likely—this surely is not a disquieting statistic. Some dangerous minor symptoms have been reported. But these were clearly due to an accidental overdose (Bossart's case) or "the outcome of neglected attention to a retroplaced tongue, or a disregard of sufficient admixture of air" (Ware's²⁴ cases).

characterized by some tonic contractures, accelerated respiration and usually a moderate degree of mydriasis; this is called the catalytic stage by some, the stage of contracture, or the stage of analgesia by others, and is suitable for short operations. After two to five c.c. have been inhaled, or more, in the case of large adults, usually after fifteen to sixty seconds, or sooner in children, the third stage that of profound anesthesia supervenes. The muscles are now relaxed, the breathing is deep and rhythmical, perhaps snoring, usually the pupil continues to be somewhat dilated, and the conjunctival reflex is abolished. In some instances the patient passes at once into the third stage, sometimes it takes five minutes, once in a while the third stage is not reached at all. If the ethyl chloride is to be continued small doses, say one c.c., are given about every minute; or if a mixed anesthesia is to be used the change can readily be made if the modified Allis inhaler is employed. The patient is awake within a few minutes after the mask is removed. After a short anesthesia he is seldom nauseated and rarely complains of a headache. He may be a trifle upset by his strange position and surroundings, but he will quickly recover himself. If it

was a long operation and he is taken to the ward he soon will be as natural as the other patients. If it was a short operation, say in the office, he will not be delayed long from going about his business.

To one desirous of considering this subject in greater detail, the author commends Ware's several papers, McCardie's excellent article, Cunningham's comprehensive essay, Girard's detailed description, and the chapters on ethyl chloride in both Dumont's and Zeitz's excellent books on anesthesia.

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MEDICAL PROGRESS.

SURGERY.

Traumatic Asphyxia.—The number of these cases which have been studied in life is very small, six cases in all having been reported. H. H. A. BEACH and FARRAR COBB (*Ann. of Surg.*, April, 1904) report a case which is of particular interest because it is accompanied by a close description of the pathology of the skin which clears up all doubt as to the nature of the lesion and cause of the discoloration. The patient was a robust German, thirty years of age, who had been caught an hour before entrance to the Massachusetts General Hospital in a moving freight elevator. He was held from three to five minutes. While being released, his face became black, blood poured from his nose and mouth and his eyes protruded. He became unconscious. Physical examination showed that he had been severely injured from the buttocks to the midthoracic region. In the left loin was a large fluctuating hematoma, the eighth and ninth ribs on the left side were broken. Heart and lungs were negative. The face was of a purplish hue, this color extending from forehead to just above the clavicle. Pressure on this black skin did not cause it to pale. What is characteristic of all cases was noted here, viz., at the back of the neck there was none of the discoloration except within the confines of the trapezius. There were no retinal hemorrhages. The subconjunctival hemorrhages were so excessive as to cause that membrane to bulge. The pupils and urine were normal. Patient recovered without complication save for an acute involvement of his lungs lasting over twenty-four hours. Forty-eight hours after the injury bits of skin were removed from the neck and subjected to microscopical examination. Seventy-two hours after the injury the discoloration disappeared very rapidly by

simply fading out. The discoloration did not undergo the usual chemotactic changes seen in the absorption of a blood clot. The cause of this unusual condition is generally admitted to be forcible compression of the chest lasting over several minutes and accompanied by cessation of respiration. Death of individuals in struggling crowds and mobs has often been accompanied by this symptom. There are no gross post-mortem findings in these cases other than those usually characteristic of cases of suffocation. Wright, pathologist of the hospital, reported that every section studied showed normal skin, nowhere were evidences of blood in the tissues outside of the blood vessels. This, combined with the absence of chronic change, appears to the authors to show that conclusions to the effect that hemorrhages are the cause of the discoloration are erroneous. As to the cause of the sharp limitations of the color to the head and neck, the writers make no suggestions, but are inclined to consider favorably the theory of Perthes which ascribes it to the lack of valves in the jugular and facial veins. The conclusions are that the immediate use of artificial respiration in these cases is the only therapy indicated. The development of what has been called contusion pneumonia is very common and yet it should be remembered that so far as the literature goes, this may be depended upon to clear away without serious trouble.

Appendicitis in Children.—The diagnosis of appendicitis in children is usually more difficult than in adults from the fact that one must rely largely upon objective signs and such symptoms as are obtainable from parents and nurses. J. F. ERDMANN (*N. Y. Med. Jour.*, March 19, 1904) has seen 29 cases in children under ten years of age during the past two years and reminds the profession that the most important diagnostic points to be relied upon are pain manifested by fitful crying and sleep, abdominal tenderness and rigidity of the right lower quadrant after the first few hours have elapsed; the absence of blood and bloody mucus in the stools, elevation of the pulse and temperature, usually more pronounced in children than in adults; tumor fixed and in the classical position if the illness is of several days' duration, and at this time a temperature characteristic of pus. Almost invariably the little patients unconsciously place their hand in the region of the appendix to ward off manipulations in this area. This latter sign he thinks is almost pathognomonic of appendicitis. Pneumonia and pleurisy of the type that is ushered in with lower intercostal pain is exceptionally difficult to exclude during the first day unless distinct chest symptoms are present. Should the pulse become very rapid and the face become anxious, appendicitis can be diagnosed, while, if the breathing becomes accelerated, the face flushed or livid, although the abdomen be tense and distended, pneumonia is to be considered. He believes that when appendicitis is once diagnosed the patient is always in danger till the organ has been removed and hence he advises an operation in all such cases.

Wound Infection from Speaking at Operations.—The idea that infection of an operative wound may take place from the air expired by the operator has been practically abandoned. The possibility that infection may result from the minute particles of saliva which are extruded by most persons during speech, has led MENDES DE LEON (*Archiv f. klin. Chir.*, Vol. 72, No. 4) to make some experimental observations. In a special sterilized receptacle, provided with an opening into which the operator could speak, were placed the agar plates. The culture results from a large number of trials convinced the author that during the course of an operation, a very large quantity of staphylo-, strepto- and diplococci were expelled from the mouth during the act

of speaking and so came into contact with the wound. This danger can be obviated, according to the author in two ways: Either by chemical or mechanical means. The first includes cleansing of the mouth by antiseptic solutions; the second, some means by which the germs may be caught up and rendered ineffective. The former method was found by actual experiment to be ineffective. A most efficient mechanical device was constructed, however, which consists of a double perforated metallic mask which can be closely fitted over the mouth. The space between the two perforated sheets is filled with sterile cotton and the entire apparatus may be readily sterilized. It is fastened by tapes and springs back of the ears. Repeated trials showed that the maximum number of colonies which developed on agar plates was five.

Pathology and Surgery of the Pancreas.—Virgil observed, "Drops wear away the stones, not by force but by constantly falling." The crystallized opinions of the medical profession are more difficult to wear away than the hardest trap rock. But if continual appeal will have any effect, the time will certainly come when a more liberal attitude toward surgery will be held by the average practitioner. A. W. MAYO ROBSON (Lancet, April 2, 1904), in concluding the third of the series of lectures on the pancreas, states that it is his fervent hope that the labor of his life, which has largely been devoted to the pathology and treatment of this organ, shall not be in vain. The symptoms produced by a pancreatic cyst are dependent on the nature of the disease producing cyst formation and secondarily and much later to the pressure exercised by the tumor. Fatty stools, azoturia, pale, bulky motions and glycosuria will be present or absent according to the amount of degeneration in the gland. It must not be forgotten that there have been numerous cases of pancreatic cysts which presented very few symptoms save the presence of the tumor. Surgeons are universally agreed as to the wisdom of draining pancreatic cysts, but occasionally the question may arise whether or not extirpation is not to be preferred. Tapping and aspiration are looked upon by the author as antiquated and ineffective methods, which are attended with more danger than the operation of incision and drainage. Von Mikulicz has so ably dealt with the injuries of the pancreas that little remains to be said. If, after an injury, however trivial, in the superior abdominal region, there be increasing anemia or evidences of peritonitis, immediate operation is indicated. As to calculus formation, it is probable that it never takes place in a healthy pancreas; like gall-stones, pancreatic contusions are the result of catarrh of the ducts, the stagnation of secretion, which generally, if not always, results from infection. The author suggests for this lesion the term "Pancrealithic catarrh." The calculi are very apt to be multiple and it will be invariably seen that the glands have undergone serious degenerative changes. The composition of the pancreatic calculi is important from a diagnostic viewpoint. It is well known that normal pancreatic secretion contains no calcium carbonate. In jaundiced cases the bile acids take up the lime salts to such an extent that oxalate of lime crystals have been found in only six per cent. of these cases. The very important result of this is that one is enabled to see them by the X-ray, thus differentiating them from gall-stones and diagnosing their presence. Medical treatment for these calculi is useless here as elsewhere. The typical picture of malignant disease of the pancreas may, in the author's words, be thus drawn: "A patient suffers for a time from indefinite symptoms of digestive disturbance, then jaundice appears, coming gradually but persistently increasing; the gall-bladder is usually distended and the

liver is normal or slightly enlarged. A tumor may be found in the neighborhood of the pancreas. Cachexia rapidly develops and in some cases pain disturbs the patient's rest. There is soon a feeling of intense prostration and weakness. The feces are massive and contain fat or fat-acids and an undue proportion of undigested muscle fiber. The urine contains albumin frequently and sugar and fat rarely. The whole clinical course is run, as a rule, within twelve months and, after the appearance of jaundice, within from six to eight months."

Perineal Litholapaxy.—This operation, which was originally described by Keith in 1892, has not met with the success which its advantages should justify. Litholapaxy in children is always a somewhat anxious undertaking. A. HOOTON (Brit. Med. Jour., April 9, 1904) states that many authors indicate the performance of the perineal operation under some or all of the following conditions: (1) A large stone necessitating the use of a lithotrite which will not pass easily by the natural route. (2) A very hard stone necessitating the passage of a similar instrument. (3) Stricture in conjunction with a large or hard stone or perhaps of any stone. (4) A difficult or narrow urethra. (5) Imperfect equipment. (6) Cases in which litholapaxy has been commenced in the ordinary way but cannot be completed satisfactorily owing to swelling of urethra and deposit of debris. The operation differs somewhat from that of lithotomy. A curved staff with a median groove is introduced into the bladder. The scrotum is allowed to assume its natural position. A very small incision is now made with the point of a tenotomy knife, in children about one inch in front of the anus through the median raphe and the urethra, incised for one-eighth of an inch. The point of an ordinary director is inserted through the wound and passed into the bladder, which is then dilated up to the required size. The evacuating catheter is now passed, the bladder injected and the lithotrite follows without difficulty. The operation is completed in the same way as in ordinary litholapaxy, and, as a rule, there is no difficulty in retaining fluid in the bladder. In order to avoid a valvular aperture, it is most important that the skin should not be displaced while making the incision, but should be left to hang in its normal condition. This method has never been intended to replace lithotomy, which will always remain the operation of choice.

Bone Suture with Silver Wire.—The objections to the use of this material have always been centered in the possibility of postoperative infection. It seems as though the two places in the body where non-absorbable suture material could favorably be employed are the intestines and the bone. The fear, however, has always been in the case of the latter, that great difficulty and annoyance would be experienced in removing the suture should infection occur. This has led to a rather wide use of catgut, which has been chromicized for a sufficient length of time to enable it to resist absorption almost indefinitely. While there can be no absolute necessity for inserting a metallic body in a joint which ultimately is going to heal to be stronger than any other portion of the bone, like the joint of a plumber's pipe, yet it is confessedly advantageous during the first few months of healing to have some strong fabric discounting the differential muscle traction. H. GRISSON (Zntrbl. f. Chir., March 19, 1904) presents a very clever method for tying silver wire, which has been used to maintain the juxtaposition of broken bone, and which cannot fail to give great delight to those who feel that wire is indispensable for the treatment of these conditions. The technic is simply to tie two knots in the course of the wire at a sufficient distance apart so

that when one is against the bone, the other will lie beyond the soft parts. The suture is then carried in the usual manner through one bone from above downward and from below upward through the other. The needle end is then cast about the proximal knot, which is slightly raised from the bone. It is then pulled through with a pair of forceps and left in the form of a loop, the loose extremity hanging out of the wound. This clever form of knot cannot possibly untie. The more tension placed upon it the tighter does it become. Should suppuration occur, the technic of removal is very simple. One simply draws upon the unknotted end, which has been carried alongside of the knotted end well out beyond the skin wound, until the loop is felt to be released. Gentle traction on the knotted end will without difficulty remove the entire suture without injury to the soft parts.

THERAPEUTICS.

Prophylaxis of Gonorrheal Ophthalmia.—Since Credé has introduced his valuable silver nitrate installations, gonorrheal ophthalmia has almost disappeared from institutions but is still common in private practice, since midwives do not generally practise the method. The original instructions are still followed except that a one per cent. solution is generally employed, as irritation is less liable to follow. D. DAUBER (Münch. med. Woch., Feb. 16, 1904) states that many attempts have been made to substitute some less irritating silver salt for the nitrate. Protargol in 20 per cent. solution and silver acetate in one per cent. solution have been tried extensively, but the results are not much better than with the nitrate. Even where the silver acetate was followed by sodium chloride the percentage of silver-catarrh was greater than with the nitrate. As the cases of blindness secondary to puerperal gonorrhea are still very numerous, it is absolutely essential to instruct midwives in the proper care of the eyes after birth.

Olive Oil in Diseases of the Stomach.—Since the operative treatment of pyloric stenosis has on the whole been unsatisfactory—some of the best surgeons still report 16 per cent. mortality after gastro-enterostomy—every new internal method demands a careful trial. P. COHNHEIM (Zeitsch. f. klin. Med., Vol. 52, Nos. 1 and 2) has seen excellent results from large doses of olive oil; in spastic stenoses an absolute cure will follow, while in cicatricial stenoses more relief is obtained than after any other method, provided complete atresia does not exist. Good effects are even seen in pyloric cancer for the oil easily passes the narrow opening and acts as food. It is best to wash out the stomach in the morning and then to introduce 100 to 150 c.cm. of the warmed oil; after this patient lies down on right side—and fasts for an hour. If the patient does not completely lose his pains during the day, he is instructed to take 50 c.cm. before retiring: Later in the treatment the patient also takes the morning dose himself; a wineglassful one hour before breakfast and one to two tablespoonfuls one or two hours before dinner and supper will then suffice. In mild cases an emulsion of almonds may be substituted for the last two doses. In purely hysterical spasm relief is not generally seen, so that the oil may be occasionally employed to decide the diagnosis. After-effects, such as eructations and diarrhea are rare and only few complain of the taste. It will often be possible to avoid an operation with doubtful outcome, if the oil cure is employed systematically.

New Laxative—Purgatin.—Ebstein reported some two years ago his favorable observations on purgatin as a laxative devoid of any of those unpleasant results, such as abdominal pain, nausea, tenesmus, etc., that are

so characteristic of this class of drugs. To determine the real nature of the drug STRELKOFF (Roussky Vrach, No. 9, 1904) administered it to some 26 patients suffering from various diseases of the gastro-intestinal tract. His conclusions are as follows: (1) The drug does possess laxative properties, but rather to an inconsiderable degree; (2) it is tasteless; (3) it does not liquefy the feces. These few advantages are more than counterbalanced by the fact that the drug is apt to cause pain on urination, tenesmus, severe abdominal pains prior to evacuation of the bowels, tenesmus and pain during evacuation, nausea, borborygmus, diarrhea, etc. As small doses fail to cause the desired effect, repeated administration of the drug must be resorted to and this is apt to cause the above unpleasant symptoms. A purgatin habit is quickly established and patients require larger and larger doses. In short, without enumerating the other disadvantages presented by the author, it may be safely asserted that the drug forms no valuable addition to our arsenal of vegetable laxatives.

Practical Method of Destroying Snake Venom.

It is remarkable how broadening an influence upon the relatively small field of medical work, the acquisition of our colonial territories has had. L. ROGERS (Lancet, Feb. 6, 1904) describes a practical method of treating any kind of snake poison which promises to be of great value in all cases seen early. It is so simple that any intelligent person can carry it out. Calmette's serum is not strong enough to counteract full doses of colubrine venoms. Furthermore, it is seldom at hand when wanted and also, unfortunately, it tends to lose its strength in a hot climate. It is useless for viper bites. It becomes obvious that in a country which is infested by snakes of different species, many of whose bite means death, it is impossible to carry around with one a sufficient number of vials containing antitoxin for each snake. Again, it is not always possible for the victim to be certain of the species of snake which has bitten him. A method which shall destroy the poison locally at the seat of its injection is therefore more practical than that which deals with it after its entry into the circulation. Permanganate of potassium, as shown by Blyth, is the best known of these substances. Brunton, who injected strong solutions of this substance at the seat of the insertion of the poison, was unable to prevent death by this means. He and Fayer, however, have recently suggested a more radical method of using permanganate. They advise ligation above the inoculation, then incision of the wound followed by the rubbing of pure crystals of the salt. The author has endeavored to discover whether the permanganate will destroy the venom of other snakes than the cobra. Ten to twenty times the lethal dose of poison mixed with very small fraction of permanganate gave positive protective results. It is positively established that the salt will destroy *in vitro* nearly its own weight in every class of snake venom. It is possible that the free pouring out of lymph in the neighborhood of the wound will sufficiently retard the absorption of the venom so that a half hour or more time may elapse from the infliction of the bite to the rubbing in of the permanganate. If a very large dose, say fifty times the lethal amount, is injected subcutaneously into a dog's tail, and this member is cut off proximal to the seat of injection within a few seconds, the animal will still die. The reason for this is that one fatal dose may be absorbed out of such a large quantity almost instantaneously. At the suggestion of Sir Lauder Brunton, a lance has been made surrounded by a sheath in the base of which permanganate crystals are kept, the whole outfit being easily carried in the corner of the vest pocket.

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BABIES AND HOT WEATHER.

THE Health Department of the City of Rochester, N. Y., has issued a little circular, entitled "How to take care of babies during hot weather," which is evidently meant for distribution in crowded districts of the town. It is such an excellent compilation that we feel we should call attention to it, since other boards of health throughout the country may wish to imitate Rochester's provident example, and they will find in this pamphlet much that is suggestive, nothing that is not eminently practical.

The outside cover bears the legend "NO OTHER FOOD, not even a wet-nurse, can take the place of milk from the child's own mother." In these modern days when a trivial excuse is sometimes considered quite enough to justify the weaning of the baby and when even physicians do not seem to be sufficiently impressed with the fact that nothing can ever make up entirely for mother's milk, it is well that this item of our present-day conclusions in medicine should be brought prominently before the public for its serious consideration.

Another excellent feature is found at the foot of the outside cover. In large capitals are the words "Give the Baby Water." There was a time not so long since, when babies practically never

received simple, plain water. To-day it is a difficult matter to persuade some mothers that children should be given water several times a day. There are families, fortunately rarely met with in this country, in which when the child cries for a drink in hot weather it must take a full meal of milk in order to obtain the drink. Streaming with perspiration, the little one is taken up from its warm bed in the summer-time, crying because it is thirsty, and instead of being given water is given milk or the breast. Somehow the custom, common enough three generations ago, of providing water for baby, has gone out, except where the modern teaching of the necessity of water has been especially insisted on.

Not a few of the babies who suffer from constipation do so mainly because of the fact that not enough liquid is supplied to them to make their food sufficiently dilute so that peristalsis shall have a fair chance to move it easily. This did not mean so much when houses were warmed by fireplaces, as there was a constant draught of air from outdoors carrying a steady amount of moisture with it. Now, in steam-heated houses the necessity for water, even in winter-time, for children, is easy to understand, and in summer-time it is little less than the worst form of cruelty to deny it to them.

With such good points on the care of children on the outside of the little pamphlet it is not surprising to find that the inside is full of excellent suggestions. To keep a baby well, is the first paragraph and it consists of these short sentences: "Give it pure air day and night; give it no food but mother's milk, or that directed by physicians; when it cries or is fretful do not offer it food, but give it water; be sure that it gets enough sleep, two naps during the day at least; do not put too much clothing on it; bathe it in a tub every day; don't handle it. Let it alone." These are expanded in successive paragraphs. The necessity for having a window open in the baby's sleeping room at night and during the day, is insisted on. Then, also, the danger of overnursing or overfeeding and the necessity of stopping food soon as the first symptoms of diarrhea present themselves is urged. Regular feeding is emphasized and in capitals the expression, "*Feed it by the clock,*" ought to attract sufficient attention to make readers realize its importance. Finally feeding according to age is made a feature. The chapter closes in this wise, "Never let the bottle stand with milk in it. Never use a bottle with a long rubber tube."

To our mind the most important paragraph in the book is that with regard to baby's sleep. The question of the proper sort of bed is discussed, and the use of feathers, in any form, whether in pillow or in the mattress, is rejected as entirely out of place, especially in summer. Wool or cotton must, for the same reason, be considered unsuitable. The very practical suggestion is made that babies' beds should be made of excelsior covered with cheese cloth. These materials are cheap and easy to obtain and when the mattress becomes soiled in any way, it may be thrown away and another one made without delay or cost. It is easy to understand that such a bed is at once clean and comfortable. The Rochester Board of Health, of course, is considering city life, but in country places such a mattress might be filled with corn husks or other suitable material, easy to be obtained on farms. The objection that will occur in most mothers' minds at once is that this is entirely too rough for baby and will injure its delicate skin. As a matter of fact, baby's skin will be much healthier with the opportunity for transpiration and perspiration afforded by such a mattress than by anything that presses close to its body and prevents the proper functions of the skin during the many hours that baby must pass in bed.

Letting the baby alone is recommended as the best possible way to prevent its suffering from the heat, more than is absolutely inevitable. When baby is ill, the place for it is not in mother's nor nurse's arms, but in its bed. Just because it happens to be fretful is no reason at all why it should be petted and jostled by being carried. When it is well it should be allowed to lie in bed so much as possible without much clothing on, so as to enable it to exercise its limbs freely. It is surprising how early in a baby's life it learns to play, if left to its own devices. When it is to be put to sleep, if put in its bed, it will go to sleep as a rule without rocking after a short preliminary cry. Crying is not a signal for it to be made still more uncomfortable in hot weather, by being carried in nurse's arms. Crying is, as the Board of Health points out, only one form of exercise of the lungs in children and when they are a little older they will make themselves a nuisance by still further exercising this function, but it should not be considered as something that must be stopped at all hazards.

While there are many suggestions herein that might not meet with the approval of mothers of large families, the advice is simple and practical.

PATIENT—PHYSICIAN—PHARMACIST.

IN our Correspondence columns this week (p. 1040) we publish an important contribution that is of vital interest to every physician in the State of New York, if not in the United States.

By the ruling of Judge Gaynor, herein cited, two principles are laid down as good law. In the first place the competency of the medical practitioner as an expert in the knowledge of the action of drugs is considered secondary to that of a drug clerk, and secondly, an apothecary can, whenever he sees fit, substitute in a physician's prescription something "just as good" and receive legal sanction, if not approval—from Justice Gaynor at least.

The evils of substitution are too well known and recognized by all of us to need much further comment; yet, in the present instance, we find a drug clerk substitutes morphine and heroin for heroin alone, and yet this does not seem to strike the judicial mind as anything to be condemned.

The larger evil, however, resides, we believe, in the acceptance of the testimony of a druggist as relevant and as competent as to what constitutes a poisonous dose for a particular patient and the rejection of the testimony of the attending physician on the same issue.

We have never heard of an instance in which the testimony of a druggist, and an interested party in addition, who does not know the patient nor the nature of the illness, has been considered more relevant by a court of law than that of the family physician who by education, training, and special knowledge, is entitled to speak with authority concerning the case in hand. In the present issue such is the attitude taken by the learned judge.

Shall the courts uphold a violation of the legal relations which exist between the physician, the pharmacist, and the patient? If so, the physician must retire and leave the patient to the authority of the drug clerk, which Justice Gaynor holds higher than that of the practitioner of medicine.

Such a condition is intolerable.

ACUTE OSTEOMYELITIS.

THIS important affection has at last attained its proper place in nosology. It is still occasionally mistaken for acute articular rheumatism, especially in children, and this, too, at a time when delay is dangerous but ever more and more, in recent years, physicians and surgeons are successfully on their guard against such erroneous diagnoses. An element of difficulty in early recog-

dition of the disease is that no hint of the fact that the preceding affection to which it is secondary is about to affect the bone-marrow is ever given. It may occur after the simplest forms of infection. After a whitlow that runs a mild course, after a boil or furuncle that is no severer than hundreds of others that have been under observation without any sequela, or it may even be subsequent to an attack of typhoid fever that took place months, or even years before. As delay may be very dangerous, it is easy to realize how much this feature of lack of premonition may mean and how important it is not to disregard the slightest sign.

The most important form of the disease is acute infectious osteomyelitis, which is treated of very completely by Edward H. Nichols, in the *Journal of the American Medical Association* of February 13, 1904. To those who are unfamiliar with recent investigations into the etiology of acute osteomyelitis, it will be somewhat of a surprise to learn that the affection is usually due to the staphylococcus. The *Staphylococcus pyogenes aureus*, is more often present in pure cultures than either *albus* or *citreus*, though the *aureus* perhaps produces, at least according to the experience of French writers, more serious lesions. Staphylococci are usually not looked upon as very malignant organisms and are, when compared to the streptococcus, considered not to be especially destructive. In the bone-marrow, however, these properties of the two forms of microorganism are reversed. The *Streptococcus pyogenes* seldom produces such severe lesions as the staphylococcus. It always has a tendency to remain more superficial than the other, and, as a consequence, not infrequently invades neighboring joints or causes separation of an epiphysis.

Acute osteomyelitis, due to staphylococcus, may follow a cutaneous furuncle. It has itself been designated picturesquely as "a furuncle of the bone-marrow," and this is thoroughly descriptive of the pathological condition which is present. A peculiar form of the disease, though running a course not unlike that produced by the staphylococcus, is due to an infection by the pneumococcus and occurs subsequent to a pneumonia or a severe pleurisy with effusion due to infection directly from the lung, or to an empyema.

With this knowledge of the etiology it is easy to understand the necessity for prompt operation. The toxins of the disease soon cause severe ravages in the body unless the focus of infection is promptly removed. It has sometimes been sug-

gested that drainage of the abscess of the bones and of the soft parts above the bones is sufficient as a preliminary operation. As Dr. Nichols insists, however, the bone-marrow itself is infected and must be drained. In a very early stage of the disease, however, to make extensive removal of bone is not necessary, and much less advisable. All that is necessary is to give perfect drainage to the bone-marrow. At this stage even curettement may do more harm than good and the bone may recover and repair the defect without the formation of a sequestrum.

The best results can be obtained not by trying to accomplish complete removal of the focus of inflammation at the time of the first operation, but after the establishment of drainage and waiting for a couple of months to undertake a second operation for the removal of whatever necrosis may have taken place. Dr. Nichols believes that from his own experience it is better to remove the sequestrum and involucrum rather than the sequestrum alone. Wherever there is dense cortical bone, its power of repair is very slight or practically absent. To leave an extensive cavity in bone, surrounded by a wall of this dense, almost ivory-like, material, is to invite failure of the operation, as the unhealthy granulations lining the cavity have no proper tendency to close.

A complete removal of a portion of the shaft of the bone is often the best possible technic. The excision must be carried sufficiently far into the normal shaft to get well above the medullary canal wherever it is occluded by dense ivory bone. The limits of excision must reach into vascular bone-marrow, otherwise the results hoped for will either not be obtained at all, or will be obtained so slowly as to be very discouraging.

ECHOES AND NEWS.

NEW YORK.

Women's Hospital Cornerstone Laid.—The cornerstone of the new Women's Hospital, on One Hundred and Tenth street, near Amsterdam avenue, was laid Tuesday afternoon by President John E. Parsons. Archdeacon G. F. Nelson opened the exercises with prayer, and a large gathering of members and friends of the hospital was present.

Reception Hospital at Saranac Lake.—A Reception Hospital has been incorporated to maintain a hospital in North Elba, Saranac Lake Village, in the Adirondacks, to care for confirmed consumptives. This institution is intended to relieve a class of sufferers who are turned away everywhere and who cannot be taken at the Trudeau Sanitarium at Saranac Lake because their cases are too far advanced to promise any hope of cure and because they are ill enough to need nursing. Miss Mary R. Prescott is the leader in this charitable movement, and she

now maintains a reception cottage at Saranac Lake, where this class of consumptives get the best of care, food, nursing and medical attendance, the charge for which does not begin to cover the running expenses. Miss Prescott assumes the responsibility for the deficit and her work is much praised by Dr. Trudeau, who with Dr. Edward R. Baldwin, John Harding and Oliver Prescott, Jr., of Dartmouth, Mass., are the managers of the new hospital.

Dr. Cook, President of Police Surgeons.—At a meeting of the Board of Police Surgeons in Police Headquarters, Dr. Stephen E. Cook was elected President of the Board for the eighteenth time. Though it had been the custom of the Board to choose its own President, Commissioner Greene appointed Dr. Edward T. T. Marsh, the chief executive of the body. When Mr. McAdoo became Commissioner he said he would let the Board of Police Surgeons manage their own family affairs. Dr. Marsh will retire on a pension soon.

Report of New York Deaf and Dumb Asylum.—The annual report of the above institution shows that 464 pupils have been cared for during the past year. Of these 204 were congenitally imperfect, and 93 before the age of two years. The causes are set down as follows: Basilar meningitis, 36; brain fever, 34; scarlet fever, 30; measles, 18; the rest from indifferent causes of various kinds.

Odell Approves Bill for New York Reception Insane Hospital.—One of the surprises which came out of the legislative chamber last week was the approval by the Governor of Senator Foley's bill authorizing the City of New York to acquire a site and to lease it to the State for the establishment thereon of a reception hospital for the insane, and authorizing the State Commission in Lunacy to erect such a hospital. Gov. Odell had feared that the bill carried with it an appropriation of \$300,000.

Spread of Fatal Spotted Fever.—Dr. Hermann M. Biggs, in charge of the Bacteriological Department, said Wednesday that there were 97 deaths from this disease last week. From various diseases there were 150 deaths in the week. Last year in the corresponding week there were 36 deaths from spotted fever. Spotted fever has steadily increased since March 1. Not since 1872 has there been such an outbreak. According to Dr. Biggs, the disease at present is almost always fatal. Until recently the disease was supposed to attack only children, but from the statistics of last week's deaths it was found that 33 cases were of people between five and fifteen years, 23 over fifteen years, and the remainder under five years. The Department of Health, to aid in trying to fight the disease, has offered to place at the disposal of all hospitals and medical practitioners the service of its laboratories for the diagnosis of cases. The germ is known as meningococcus. Dr. Biggs said that in cases of spotted fever attending physicians should send specimens of the germ obtained from patients to the department for a bacteriological examination.

Diagnosis of Spotted Fever.—Owing to the prevalence in the city of epidemic cerebrospinal meningitis, the Department of Health offers to place at the disposal of hospitals and medical practitioners the service of its laboratories to aid in the diagnosis of this extremely fatal disease. The meningococcus (*Diplococcus intracellularis meningitidis* of Weichselbaum) is found in the cerebrospinal fluid of the majority of cases and usually also in the nasal secretion. The Department of Health will examine free of charge specimens of cerebrospinal fluid, as well as smears of, and cultures from, the nasal secretion. Such examination will in many instances assist in the early recognition of the disease and in determining the nature of obscure cases. Special

outfits, consisting of a blood serum culture tube, a sterilized swab, and a glass slide for the smear, can be obtained at the Department of Health, Fifty-fifth street and Sixth avenue. After obtaining the specimens, they should be sent at once to the Department. Reports will be sent by telephone and mail. Specimens of cerebrospinal fluid can be readily obtained by lumbar puncture, a simple operation easily performed by the attending physician himself, or any surgeon. The operation, in addition to being an aid in diagnosis, is directly beneficial because of the relief of the intraspinal pressure.

Summer Health Corps.—Health Commissioner Darlington said last week that the Governor's veto of the bill for an increased bond issue might so curtail his arrangements for sending out the usual summer tenement house squad as to result in a five-per-cent. increase of the death rate.

"We cannot plan for our special summer work," said Dr. Darlington, "until we know how much money we shall have to carry it on with. Of course this cut in funds is likely to fall most heavily on other departments, but it may affect us as well. We hope it will not, but if it does it means five or six per cent. more on the death rate."

In June of every year a special squad of physicians is organized by the Board of Health to work among the tenement house population, particularly among the children. Last year 75 physicians put in two months and a half at this work. To show the necessity for this extra summer work, Dr. Darlington gives a few figures. For the seven years ending in 1872 the death rate among children under five years was 133 per thousand. This loss has been reduced to 56 per thousand in the last seven-year period. Much of this improvement is due to the rigid milk inspection and to other modern sanitary precautions. But the special corps of tenement house physicians, it is estimated, save annually 20,000 lives of children that would have died under the careless system of a generation ago.

Gift for Manhattan Eye and Ear Hospital.—A gift of \$40,000, just pledged by Edward R. Thomas, son of the late Gen. Samuel Thomas, to the Manhattan Eye and Ear Hospital has saved the directors of that institution from the loss of \$125,000 in conditional donations. The directors, although they had raised the rest of the amount, felt rather apprehensive about the \$40,000 which was lacking, until Mr. Thomas came to the front with his donation. The latest gift by Mr. Thomas is given as a personal memorial to his father. The Thomas family last year gave \$50,000 to the same hospital to endow a ward, to be known as the "Samuel Thomas Memorial Ward." The announcement of Mr. Thomas's gift was made on Tuesday last while a meeting of the Board was being held by Dr. Walter F. Chappell. The latter, while paying a professional visit to the home of Mr. Thomas, happened to mention the predicament the hospital directors were in, and Mr. Thomas then and there pledged himself to come to their relief. Steps will immediately be taken to purchase the land for a new building. A site has already been chosen within a block of the projected Rockefeller institute for research in East Fifty-ninth street.

New York Psychopathic Hospital.—New York is to have its psychopathic hospital, says *Charities*. Governor Odell is to be commended for withdrawing his proposed veto of Senator Foley's bill, authorizing the city of New York to acquire a site and lease it to the State for the establishment of a reception hospital for the insane, to be erected and maintained by the State for the preventive and curative treatment of patients from the metropolitan district. As the Governor in his annual message to the legislature of 1903, and on several

other occasions had expressed himself as in hearty accord with the plan of the State Commission in Lunacy to establish such a hospital, and as the bill had been signed by Mayor McClellan, it was felt that the favorable opportunity for action afforded by the agreement of the city and the State authorities should not be lost. The Governor seems to have feared that the expenditure authorized for the erection and equipment of the hospital would necessarily come from the appropriation for new buildings, repairs and improvements made by the legislature of 1904, which is all needed for the relief of the overcrowding now so unfortunately prevalent at all the State hospitals. As the project requires concerted action by many different city and State authorities it seems extremely unlikely that the actual work of construction will be begun this year. An idea of the red tape which will have to be unwound is indicated by a capitulation of the steps which, under the bill, will need to be taken: (1) The city, having decided to act under the bill, must select the site. (2) The site must be approved by the State Commission in Lunacy. (3) The site must be acquired by the city by purchase or by condemnation proceedings. (4) The city's title to the site must be approved by the Attorney-General. (5) The lease of the site by the city to the State must be approved by the Attorney-General. (6) The State architect must prepare plans and specifications. (7) The plans and specifications must be approved by the State Commission in Lunacy. (8) The plans and specifications must be approved by the Governor. (9) The specifications must be printed and advertised for bids for a considerable period. (10) The State must then erect the hospital out of any moneys appropriated for new buildings, repairs and improvements for the State hospitals.

This procedure is so complicated that it seems very important that a beginning should be made this year. Even so, the most sanguine can hardly expect to see any building operations actually under way before its close. Too great stress has been laid upon the cost of the proposed institution. Bear in mind that it promises to be, in the long run, a source of great financial saving to the State, for if it succeeds in checking the alarming increase of insanity by its preventive and curative treatment of incipient and acute cases, it will save the State an enormous outlay for buildings and maintenance. Remember that taking into consideration the wealth-producing value of an able-bodied and able-minded citizen and the cost of providing accommodation and care for an insane patient, every person discharged cured means an estimated saving or gain to the State of about \$500 a year. Then it is possible to realize what an increase of cures will mean in the wealth, as well as in the health and happiness of the people of this State. The State of New York is to be congratulated upon being the first to sanction the adoption of the most scientific and humane methods of treating the victims of a disease which ranks only second to tuberculosis as the greatest scourge of modern civilization. The administration of Governor Odell will long be remembered for its enlightenment in making possible the initiation of a new era in the treatment of the insane in this country. The members of the Board of Estimate and Apportionment of New York City will do well to forward the movement made possible by Mayor McClellan's approval of the bill providing for cooperation between the city and the State, and carry into effect the city's share of the provisions of the law by taking immediate steps toward the acquisition of a site that shall be centrally located.

Manhattan Dermatological Society.—Regular monthly meeting held on Friday evening, May 6, 1904,

at the residence of Dr. Edw. Pisko; Dr. I. P. Oberndorfer presiding.

The following cases were presented: By Dr. Oberndorfer, a woman aged fifty-four years, with a lesion on chin and adjacent part of neck. Began last July on chin and gradually spread to neck; the lesion is indurated; its outer border being extremely hard; the center shows numerous papillary excrescences; a somewhat similar indurated patch is seen near the clavicular insertion of the right sternocleidomastoid muscles; presented as a case of morphea; this diagnosis with some reservation. Dr. Pisko thought it resembled the early stage of skin epithelioma; he fails to see any characteristic signs of morphea. Dr. Abrahams suggested large doses of KI for diagnostic purposes; to him the diagnosis was not so clear; it certainly does not resemble morphea. Dr. Gottheil regards it as a localized scleroderma. Drs. Cocks and Sobel express no opinion. Dr. Weiss said the cartilaginous hardness, papillary growths favored diagnosis of malignant tumor; the patch near sternum was undoubtedly a sign of metastasis; he termed the growth carcinoma lenticulare.

Dr. A. Bleiman showed a boy of six years, who at the age of six weeks exhibited signs of infantile eczema; the eczematous patches spread all over the body and during the first 3½ years of life at no time was the skin ever perfectly clear; at the age of four years, child underwent an eight weeks' course of treatment at the New York Skin and Cancer Hospital and was discharged cured; one month later the process broke out again and since that time the skin never cleared; six months ago, when first observed, patient showed the typical shotty papules, buboes, indurated and infiltrated skin and eczematous condition, confined chiefly to extensor surfaces of upper and lower limbs; presented as a case of true prurigo; the classical picture of the condition being considerably modified, the result of treatment of interest was the patches of atrophy shown on extensor surfaces of lower arms and legs. Dr. Pisko said the case was one of prurigo (Hebra). Dr. Gottheil likewise called it prurigo; the eczematous element was considerably exaggerated in this case. Dr. E. L. Cocks said he saw the case when it was under treatment at the New York Skin and Cancer Hospital, the diagnosis then made being general infantile eczema; there was marked itching, secondary infection, superficial ulceration and consequent atrophy, as now presented in patient; judging by the subsequent history and present appearance he likewise inclines to call it a prurigo. Dr. Oberndorfer failed to see the typical prurigo papule nor the indurated skin of the lower limbs; he knew of chronic relapsing eczemas which resembled this case. Dr. Weiss said six months' treatment would tend to alter the original condition; if the classical signs of induration, localization papules and buboes were present then, he would not hesitate to call it prurigo. Dr. Sobel thought we had to deal with a chronic eczematous condition in a scrofulous child.

Dr. Pisko showed a case of lupus erythematosus, illustrating the beneficial results obtained by the use of local applications of pure trichlor. acetic acid. He also showed a light negress with verrucous-like lesion of chin; present about one year and not under treatment during that period; patient acknowledges infection and dates initial lesion back fourteen years; presented as a case of lues. Dr. Weiss would not make a diagnosis of lues on appearances only; he said lesion was not typical. Dr. Oberndorfer does not consider this type of lesion as uncommon.

Dr. L. Weiss presented a girl of thirteen years, showing an irregular granulating patch on right cheek, about 1½ inches square; this lesion was of one year's dura-

tion; other lesions on cheek of long standing (but now healed) are recognized by scar tissue. Presented as a case of scrofuloderma.

Dr. W. S. Gottheil presented a case of tuberculosis cutis: the face and neck showed involvement; old lesions on face healed with resulting scar; the latter extensive and deep, adherent to bone; the condition is present about six years; it began on the neck; another lesion is seen on the left lower leg. Treatment consisted of Finsen light exposures, giving three-quarter-hour sittings three times a week. Dr. Weiss, in comparing this case with his own, stated that multiple lesions of this kind (Gottheil's case) speak for lupus; where the loss of substance was superficial, he would use the term tuberculosis. Gottheil's case he termed lupus serpiginosus exulcerans.

Dr. Gottheil also showed a case of triple chancres of the lip in a female; roseola on body. He also showed the following photographs: (1) Acne cornea (micro-photos of sections); (2) lupus vulgaris; (3) chancre of lip; (4) tuberculosis cutis; (5) dermatitis exfoliativa; (6) bromoderma tuberosum.

PHILADELPHIA.

Decrease in Contagious Diseases.—The new cases of contagious diseases for the past week were 166 less than during the preceding seven days. The principal reduction was in typhoid fever which fell from 295 to 182 cases. Smallpox dropped from 27 to 11 cases and scarlet fever from 100 to 65 cases.

Charters for Medical Institutions.—The People's Hospital of Frankford has applied for a charter. No site has been selected for the building. The White League, an association for the treatment of tuberculosis, has also made application for a charter. The object of the League is to treat tuberculosis by modern means and also to furnish employment for the patients.

Women's Medical College.—At the fifty-fourth annual commencement held recently a class of 43 was graduated. The alumnae now number 1029. A bronze tablet erected in the gymnasium to the memory of Dr. Susan P. Stackhouse was unveiled with appropriate ceremonies.

Dr. Oliver a Guest of the British Medical Association.—Dr. Charles A. Oliver, of Philadelphia, Pa., has been chosen by the British Medical Association as its official guest from the United States for its seventy-second annual meeting, which is to take place in Oxford, England, in July. With him are associated Prof. Hirschberg, of Berlin, representing Germany, and Dr. Javal, of Paris, representing France. During his stay Dr. Oliver will reside at Koble College as the personal guest of Mr. Robert Walter Doyné, the President of the Ophthalmological Section of the Association and Lecturer on Ophthalmology at Oxford University.

Philadelphia Hospitals' Association.—The meeting of this association on May 16 received the report of a special committee condemning the milk supply of many of the hospitals of the city. As a result several of the institutions have made arrangements for the bacteriological or chemical test of their milk. At the same meeting Dr. Lawrence F. Flick made an argument in favor of the treatment of the tuberculous by the general hospitals. He finds that there is an average daily vacancy of 1,600 beds in the various institutions, this being about the number needed by the city for the proper care of its tuberculous. The hospitals should admit curable cases and the city provide their maintenance.

Witch Doctors to be Eradicated.—It is stated that the Berks County Medical Society and the State Medical Board contemplate a crusade against the witch doctors

of Eastern Pennsylvania. These "voodoos" are patronized in Berks, Lehigh, Bucks, Lancaster, and Dauphin counties. Many charms have been collected as evidence against these crafty individuals who secure fat fees by putting aright the cases of "Hexerei" as they are known. The practice is based on a small book of charms and queer incantations as remedies written some eighty years ago by J. G. Hohman, a pioneer witch doctor of that region.

Jefferson Medical College.—A class of 169 was graduated at the seventy-ninth annual commencement held May 27. The degree of LL.D. was conferred on Prof. Dr. Albert Hoffa of the University of Berlin. Dr. Hoffa was the guest of honor at the alumni banquet held May 26, and on the same day gave an orthopedic clinic at the Jefferson Hospital. To perfect the faculty organization of the college the trustees have advanced to full professorship, with seats in the faculty, the following clinical professors: Ophthalmology, Dr. Howard F. Hansell; clinical surgery, Dr. W. Joseph Hearn; dermatology, Dr. Henry W. Stelwagon; orthopedic surgery, Dr. H. Augustus Wilson; diseases of children, Dr. Edwin E. Graham; genito-urinary surgery, Dr. Orville Horwitz; otology, Dr. S. MacCuen Smith; laryngology, Dr. D. Braden Kyle; clinical medicine, Dr. Solomon Solis-Cohen, and physiology and hygiene, Dr. Albert P. Brubaker. In addition to these changes, Dr. John H. Gibbon, surgeon at the Pennsylvania Hospital, was elected associate professor of surgery. Dr. Randle C. Rosenberger, assistant professor of bacteriology, and Dr. Aller G. Ellis, associate in pathology.

Prof. Munyon Must Pay \$20,000.—In their suit to recover \$50,000 damages from Munyon's Homeopathic Remedy Company, Rebecca E. and Peter B. Sprengel received a verdict for \$20,000 in the Court of Common Pleas. Mrs. Sprengel, who was brought into court on a stretcher, declared that she was injured by the treatment given to her by Dr. W. S. Moat, one of Prof. Munyon's assistants. Physicians for the defendants swore that the treatment was the one prescribed by medical authorities.

Faculty Reorganization, University of Pennsylvania.—A plan for the reorganization of the Faculty has just been approved by the Board of Trustees, whereby the Faculty membership has been extended to the Clinical, Associated and Assistant Professors, to the Associates and Lecturers and to limited representation from the subordinate staff. The scheme provides for an executive body or Council, to be composed of the heads of the Departments in the fundamental subjects and two representatives of the Specialists. The plan will be put into effect September 1, 1904.

University's New Laboratories.—On Friday, June 10, with exercises commencing at 4 o'clock in the afternoon, the University of Pennsylvania will dedicate a new medical laboratory on the south side of Hamilton street, between Thirty-sixth and Thirty-seventh streets, on the site of the old Veterinary Hall and Hospital. The building is two stories in height above a high basement and measures 337 feet in front by nearly 200 feet in depth. The long front faces north, securing a maximum amount of the best light for laboratory purposes. In completeness of equipment this new building is without a rival. It provides for the teaching of students and the carrying on of research work on physiology, pathology and pharmacology, in which departments of medicine the greatest advances have been made in the past, and may be predicted for the future. The exercises comprise a procession of students, faculty, and guests from Houston Hall to the new building, where the following program will be carried out:

Presentation of building and opening of laboratories; presentation to the Trustees by J. Vaughan

Merrick, Esq.; acceptance on behalf of the Trustees by C. C. Harrison, LL.D., Provost of the University. Formal addresses in the Laboratory of Pathological History by Professor H. P. Bowditch, Professor of Physiology, Harvard University; Professor R. H. Chittenden, Director of the Sheffield Scientific School, Yale University; Professor George Dock, Professor of Medicine, University of Michigan; and Professor Horatio C. Wood, Professor of Therapeutics, Materia Medica and Pharmacy, University of Pennsylvania. The first floor of the new laboratories is to be devoted to physiology and pharmacodynamics. The department of physiology on the first floor will have provided one large room in which there will be ninety cabinets, fully equipped with such apparatus as is required in the practical exercises in physiology carried on by the students. The department of pharmacology has also been provided for on the first floor. This contains a large laboratory for practical pharmacodynamics; a large laboratory for practical pharmacy, a museum, a library and various rooms for the instructor and his assistants for research work, etc. The second floor will be devoted exclusively to pathology, with temporary accommodations for a number of the professors of other departments until the completion of future building operations rendering possible the final transfer of the entire medical school to buildings adjacent to the present new building. The entire north front of the building (with the exception of the temporarily arranged private rooms for various professors and the general pathological office) is devoted to laboratories for advanced students in experimental pathology and pathological bacteriology and the special research and assistant's rooms. There are two demonstration and two lecture rooms in the building. The two demonstration rooms each seat 185 students. These rooms communicate with two preparation rooms each. At the rear of the building there are two large lecture rooms, each seating 400 students. The architecture is distinctly "Pennsylvanian," and conforms to that of the dormitory system, the new law school building, gymnasium, engineering hall, and the stadium of the university. It may justly be regarded as one of the most impressive buildings in Philadelphia.

CHICAGO.

Big Sum for New Hospital.—Over \$400,000 has been raised by the committee of eight for the erection of a new Michael Reese Hospital, and at the joint annual meeting of the Board of Directors of the United Hebrew Charities and the Associated Jewish Charities, Leon Mandel, Edwin G. Foreman, W. N. Eisendrath, Moses Born, Julius Rosenwald, Maurice Rosenfeld, Moses E. Greenbaum, and Herman F. Hahn, were appointed a building committee with power to act.

Provide for Fourth of July Victims.—Dr. J. B. Murphy was recently elected Chairman of the committee organized by the promoters of Chicago's "sane" Fourth of July to care for children and others who may be injured that day.

Nurses Given Diplomas.—At the graduating exercises at the College of Physicians and Surgeons, held May 18, twelve nurses, who had completed the three years' course at the West Side Hospital, were given diplomas.

Farm Inspection.—Dr. John C. Cook read a paper on this subject before a recent meeting of the Chicago Pediatric Society. Among other things, he said that the first requisite to good milk is good cows, and it is the opinion of milk producers that the milk from a so-called "breeder's herd" is the more valuable to both producer and consumer. First, they

are better cared for; second, the farmer is constantly trying to improve his herd by disposing of the poorer ones, and replacing them with better animals. The most practicable standard for the estimation of cleanliness in the care and handling of milk is its relative freedom from bacteria, and most commissions which have taken action in this matter have tentatively fixed upon the maximum of 30,000 germs of all kinds per cubic centimeter of milk, with a minimum of four per cent. of fats and all the other characteristics of pure, wholesome milk, in order to obtain the endorsement of the commission. Dealers who incur expense and take the precautions necessary to furnish a truly clean and wholesome milk should have some means of bringing these facts before the public. He pointed out the required conditions of the premises. The whole premises used for dairy purposes, as well as the barn, must have a supply of water free from any danger of pollution with animal matter and sufficiently abundant for all purposes, and easy of access. He emphasized the importance of the milk being personally clean, also the dairy utensils, saying that the latter should be thoroughly cleansed, first, by thoroughly washing with a brush and soap, then rinsing in warm water and sterilizing with steam.

GENERAL.

McGill University.—Dr. J. T. Halsey, lecturer in pharmacology at the university, whose resignation was recently accepted, has been appointed professor of therapeutics and clinical medicine in the Tulane Medical University, New Orleans. Dr. Skane, registrar of the McGill medical faculty has been recommended to the corporation to succeed Dr. Halsey.

Queen's University Alumni Dinner.—The second annual meeting of the alumni of the Medical Department of Queen's University, Canada, was held on May 18 at Muschenheim's. About 50 members were present, all of them in active practice in this city and in Brooklyn, some having graduated so long as forty years ago. The present New York association was organized two years ago by Principal Grant, late of Queen's, and has been growing in numbers ever since. President J. R. Shannon made the opening address setting forth the purposes of the organization and urging those present to invite any alumnus to join who by any possible chance did not know of its existence. This was followed by a speech from the Principal of the University, Rev. Dr. Gordon. Toasts were given for the King and for President Roosevelt.

The American Medical Temperance Association.—The thirteenth annual meeting of this association will be held in the parlors of the Hotel Dennis, at Atlantic City, June 8 and 9, 1904, at 9 A.M. A very interesting program has been prepared including an address on the effects of alcohol on the structures of the body, by the honorary president, Dr. N. S. Davis, of Chicago, and also a review of late researches concerning alcohol as a drug in medicine by Prof. W. S. Hall, the president. Other papers on allied topics will be read by Drs. MacNichol, Crothers, Mason, Kellogg, Reynolds, Steward, Reese, Paulson, Madden, and others. The object of this association is to encourage and promote the clinical, therapeutical, pharmacological, and chemical study of alcohol in health and disease. It also aims to gather, compile and make available the studies and experiences of medical men in all parts of the country, concerning the use of alcohol, and to formulate such definite facts as can be

utilized and made available in the practice of medicine. The spirit and purpose of the association is a purely scientific one, concerning the nature and the character of alcohol, irrespective of all possible conclusions. Regular practitioners of medicine may become members by a two-thirds vote of the association after signing an application to the secretary. All persons interested in this great topic are earnestly invited to attend the annual meeting. For particulars address T. D. Crothers, Secretary, Hartford, Conn.

Professor Charles S. Sherrington's Lecture on Cerebral Localization.—Prof. Chas. S. Sherrington, M.D., LL.D., F.R.S., of the University of Liverpool, gave a lecture on May 5, in the Medical Hall of the University of Pennsylvania, on "Cerebral Localization." He explained the experiments carried out by himself and assistants on chimpanzees and oranges. After opening the skull and applying the Faradic current motor responses were most marked in the precentral convolution, while the postcentral was apparently silent. Practically the same results were obtained by ablation experiments. Conjugation of the eyes was obtained by stimulation of the frontal lobe, while the occipital gave more pronounced asymmetrical ocular movements. The complexity of the brain, as evidenced by the conformity of its convolutions, approaches somewhat closely that of the human type.

Doctors' Income in London.—Correspondence just printed in the newspapers calls attention to the smallness of the salaries paid to house physicians in London hospitals. Out of twenty examples selected, the average salary is about \$370 a year, in addition to board and lodging. At St. Bartholomew's Hospital, one of the largest in London, not only is no salary paid, but the hospital doctors have to pay their own living expenses. The result in all cases is the selection of physicians according to the money they have and not through fitness, as only men possessing private resources are able to take hospital posts. There are many instances where excellent men have thus been excluded from appointments which are filled by less skilled young doctors who happen to be wealthy.

Peace in Leipzig.—The conflict raging between physicians appointed by the State and independent physicians has been settled in favor of the independents. A committee of arbitration with power will wind up all unsettled matters. The appointment of district physicians is indefinitely shelved, and families are free to engage any practitioner of medicine at five marks per year for each individual.

OBITUARY.

Dr. FRANK P. BLAIR, of Allegany, N. Y., died last Saturday night of cancer. He was sixty-one years old and had lived in Allegany for eighteen years.

Dr. W. O. ALEXANDER, a well-known physician of Washington, died at his home in that city last Monday in the fifty-eighth year of his age. He was a graduate of Georgetown University and was a member of the well known Alexander family of Virginia.

Dr. THOMAS J. FITZMAURICE, thirty-five years of age, of Paterson, N. J., died May 20, from liver trouble. He was graduated from Bellevue Medical School in 1891.

Dr. ALVIN M. WOODWARD, of New York City, died last Friday. He was sixty-eight years old, and was born at Dresden Mills, Me. He studied medicine at Bowdoin Medical College, but came to New York, where he was graduated from the Homeopathic Medical College. For the last thirty years he had been connected with the

Protestant Orphan Asylum, Manhattan Avenue and One Hundred and Fourth street.

Dr. D. P. JACKSON, aged sixty-three years, died at his home in Binghamton, N. Y., last Monday. He was one of the best known physicians in that city, and was at one time health officer there. He also served several years as county coroner.

Dr. EDWIN GAILLARD MASON, of New York City, died last Tuesday at the home of his father, Dr. A. S. Mason, at Hagerstown, Md. He was thirty-nine years old, received his medical degree at Bellevue, and was assistant professor of nervous diseases at the New York Polytechnic School for several years. He was editor of *Gaillard's Medical Journal* for eight years. For fourteen years he practised in New York, and since 1900 had been Vice President of the New York County Medical Society. He was also a Vice President of the Southern Society of New York.

CORRESPONDENCE.

A NEW ROUTE TO THE UTERUS.

To the Editor of the MEDICAL NEWS.

DEAR SIR: Perhaps you may be able to find place in your columns for the following for the benefit of pelvic surgeons: A widow woman, resident of New York, lately underwent an operation for removal of a fibroid tumor of the uterus. Removal of the growth took place through an anterior abdominal incision which left the usual scar. In discussing this phase of the matter one of her female friends exclaimed that it was all wrong for her to have submitted to such an operation. "For," she said, "the best surgeons nowadays never remove a tumor that way, but reach it by cutting through the pajama, when of course there is no scar."

FREDERIC GRIFFITH.

New York, May 13.

IS SUBSTITUTION LEGALIZED?

To the Editor of the MEDICAL NEWS:

DEAR SIR: The dismissal of the case of *Laturen vs. The Bolton Drug Company* by Mr. Justice Gaynor, one of the judges of the Supreme Court of this State, on Tuesday, April 19, is an occurrence which should be of great interest because of its vital importance to the entire medical profession. The decision of the learned justice, in the case at bar, deals directly with the question of the right of the druggist to substitute, at his will or convenience, the ingredients called for in the physician's prescription. Under this decision, the person, who in the future may suffer in consequence of such substitution, must regard his chances for the relief which he may seek in a civil action for damages, as practically hopeless, and unless he may find proper redress by having recourse to the criminal courts, there would seem to be no remedy for him against the evil of the substitution of drugs in physician's prescriptions, unless such remedy may be obtained through the means of special legislation. If the final adjudication of this case sustains the action of the learned Trial Justice, then may the druggist dispense the physician's prescription in any manner which may suit his pleasure because, the decision, as it now stands, strikes a blow which shatters to its very foundation the fundamental principle of usefulness of the physician's prescription as a specific order to the druggist, the very nature of which order should make it binding and inviolate.

The plaintiff in the action, in her complaint to the court, alleged that she sent a prescription to one of the

defendant's drug stores for the purpose of having it dispensed and that owing to the fact that a certain substitution was made in the course of its preparation, she received, with each dose of medicine administered to her, double the quantity of heroin which was actually prescribed, together with a certain quantity of morphine, which was not prescribed for her at all, and that in consequence of which substitution and addition, she was made very ill and suffered from opium poisoning.

The defendant corporation interposed an answer which admitted the substitution and which also admitted the addition of the morphine, leaving the question of the measure of damages to be determined. The matter came on for trial in the Court House at Kings County, before Mr. Justice Gaynor and a jury, on April 19, 1904. The plaintiff swore to having obtained the prescription from her physician and further testified that she gave it to her son whom she sent to the defendant's drug store for the purpose of having the prescription "put up." She testified to the fact that when her son brought the bottle, containing the medicine, to her, she took it according to directions, and that the illness followed. She produced in evidence, properly numbered and labeled, the bottle of medicine in question. The plaintiff's son testified that he took the prescription to the defendant's drug-store and that after obtaining the medicine from the manager of the store, the bottle was given directly by him to his mother.

The husband of the plaintiff corroborated her sworn statement as to her illness, further testifying that he had been in constant attendance on her during her entire indisposition.

The family physician testified to having written the prescription and also to his having professionally attended the plaintiff twenty-four hours later. He swore positively that he found her suffering from acute opium poisoning, and described to the court her symptoms, with considerable detail.

The plaintiff's counsel placed on the witness stand the manager of the defendant's store, who swore that he, himself, had dispensed the prescription in question, and the identical prescription was produced by him in court and identified. He swore further that he had made the substitution, and also that he had added morphine when none was prescribed.

Mr. Justice Gaynor having, himself, interrogated the druggist as to what, in his opinion, was a safe dose of the medicine to be administered, promptly dismissed the complaint.

The mere question as to whether the plaintiff or defendant should succeed in a litigation of this character is insignificant when compared to the great principle involved. Shall the druggist, in the dispensing of a physician's prescription, be permitted the liberty of substituting drugs other than those called for? This is the question which is interesting to us as physicians and any action emanating from the Supreme Court of this State, which has bearing on it, must, of necessity, receive the consideration at our hands to which it is justly entitled.

Owing to the fact that I wrote the prescription which enters largely into the subject of this litigation, and also owing to the fact that I professionally attended the plaintiff in her illness which resulted from the administration of the substituted preparation, I was subpoenaed as a witness to testify at the trial. I was, therefore, present during the entire court proceedings and observed all that occurred on that occasion.

I am also quite familiar with all the facts and circumstances which led up to the beginning of the action. As a full knowledge of these facts and circumstances is necessary to a complete understanding of the situation,

I beg permission briefly to relate them, and as the matter has now become one of public record, I will not hesitate in my statement to mention the names of the persons concerned.

The plaintiff, Mrs. Emma Latoren, is a married woman, residing with her husband in the Borough of Brooklyn. She is the mother of three children, the oldest being a boy who is about seventeen years of age and who is a pupil at the Commercial High School.

I have regularly professionally attended the plaintiff's family since her marriage and I was her mother's family physician before that time. During all these years of my professional observance of her I have naturally become well acquainted with her peculiarities of constitution, together with her idiosyncratic tendencies, and very early in her married life I was made aware of the fact that morphine was, to her, a poisonous drug.

For some months prior to April, 1903, she suffered from metrorrhagia, consequent on the menopause. Her hemorrhages were profuse and prolonged to the extent that she became very weak and markedly anemic.

During the month of March, 1903, she suffered from a very severe uterine hemorrhage which confined her to her bed for a number of days. During her convalescence from this attack she was unfortunate enough to contract an acute bronchitis, which was accompanied by a cough so distressing and harassing in character as to materially interfere with her sleep, and further increase her general weakness and discomfort.

In this debilitated condition Mrs. Latoren dragged herself to me at my office on the sixteenth day of April, 1903, and requested me to give her something to relieve her cough. I observed that she was very pale, presenting an almost bloodless appearance, and also that she showed other evidences of marked debility. Remembering that morphine affected her badly I determined upon the administration of small doses of heroin combined with stimulating expectorants. I therefore wrote for her the following prescription, at the same time giving her proper verbal instructions as to its use.

*R. Elix. Pinus Comp. cum Heroin.....5
(Merrill's)

S. One teaspoonful in water every four hours.
Cruikshank.

That same afternoon, namely, on April 16, 1903, her son took this prescription to the drug store owned by the Bolton Drug Co. situated at the junction of Sixth and St. Marks avenues, this borough, for the purpose of having it dispensed. The prescription was handed to Mr. Wilson, who is the manager of the store. After a reasonable length of time a bottle was handed to the boy who took it home and gave it to his mother, whereupon she immediately took a teaspoonful of its contents. About half an hour after taking it she became sleepy and drowsy, and suffered from nausea and vomiting. These symptoms persisted, the nausea and vomiting recurring whenever she attempted to raise her head from the pillow. After having slept for several hours she awoke and her cough being troublesome she took another dose of the medicine, having no suspicion at this

*Each fluid dram contains

White pine	2½ grains
Balm Gilead buds.....	2 "
Spikenard	2 "
Wild cherry bark.....	1¾ "
Ipecac	¼ "
Sanguinarine nitrate	1/16 "
Ammonium chloride.....	½ "
Chloroform	½ minim
Hydrochlorate of heroin.....	1/16 grain

time that it was responsible for her condition. Shortly after taking the second dose the drowsiness and the other symptoms, which have been described, became more pronounced. The patient says she "felt as if she were floating off into space," and was unable to raise her head from the pillow on account of the increased nausea and vomiting which such action produced. When aroused from her drowsy condition she would make attempts to get up out of bed but was unable to do so owing to the combined feelings of weakness, drowsiness, headache, dizziness, nausea and vomiting. To make matters worse, her vomiting had the effect of producing a recurrence of her uterine hemorrhage. About noon, the next day, namely, on April 17, she had sufficiently recovered from these symptoms to realize that her cough was still troubling her and suspecting that the medicine was "too strong" she reduced the dose, taking about one-half a teaspoonful. This dose was repeated several times and as the symptoms which have heretofore been described, reappeared, her son brought the bottle to my office with the request that I should see if it contained "the right medicine." A glance at the bottle was sufficient to convince me that there was a decided difference between its contents and the medicine which, under the prescription, it ought to contain.

I, therefore, communicated with the Bolton Drug Company by telephone; and had a conversation with Mr. Wilson, the manager of the store who informed me that he had himself dispensed the prescription. Mr. Wilson further informed me that when he received the prescription he did not have in stock the article which it called for, namely, the compound elixir of pine with heroin (Merrill's) and so he used as a substitute the compound elixir of pine to which he had added one-twelfth of a grain of heroin to each teaspoonful.

I thereupon asked him if he were not aware that the prescription called for one-twenty-fourth of a grain of heroin to each dose instead of double that quantity. He replied that he was not aware of the fact and also that he possessed no actual knowledge as to how much heroin the prescription should contain. I then suggested to Mr. Wilson the advisability of immediately dispensing the prescription as it was written in order that the medicine might be sent to Mrs. Laturen, at the same time telling him where he could obtain the proper preparation. (Shortly after this conversation occurred, a neighboring druggist received an order from the Bolton Drug Company for four ounces of compound elixir of pine with heroin (Merrill's) which order was properly dispensed. That same evening a bottle was delivered at the residence of Mrs. Laturen from the Bolton Drug Company, the label on which bottle corresponded exactly with that which was attached to the bottle containing the substituted mixture, but the difference in the general appearance of the two preparations was very marked.)

During this conversation I asked him to read to me over the telephone, the formula of the preparation to which he had added the heroin. Mr. Wilson thereupon read to me the formula as requested and seemed surprised when he discovered that it showed one-sixteenth of a grain of morphine acetate to each fluid dram.

It will, therefore, be seen, according to Mr. Wilson's own statement, that Mrs. Laturen received twice as much heroin as was prescribed for her in addition to which heroin she received one-sixteenth of a grain of the morphine acetate with each dose.

When Mrs. Laturen's idiosyncrasy is considered it is not hard to account for her distressing symptoms.

As soon as possible, after I was informed of the substitution, namely, on the evening of April 17, I visited Mrs. Laturen. I found her in bed. She was very drowsy, answering my questions very slowly and

frequently breaking off an answer in the middle of a sentence. Her pupils were contracted, her respirations were lowered, and she was suffering from nausea and vomiting, the nausea being most distressing when the patient was raised in bed. Her pulse was full and much slower than normal and altogether she presented a picture quite characteristic of acute opium poisoning. Strychnine, ergot and atropine were given hypodermically and the administration of the medicine was discontinued.

The next day she was better but very weak. Her nausea lasted for two or three days and her general weakness confined her to her room and residence for several weeks. Owing to the debility consequent upon her metrorrhagia her convalescence was slow, and it was several months before she entirely recovered her normal health and strength.

Mrs. Laturen was very indignant concerning the treatment to which she had been subjected at the hands of the druggist and after consultation with her husband, she decided to bring a civil action for damages against the Bolton Drug Co. Through her attorney, Mr. Edmund F. Driggs, of the New York bar, an action was brought and was disposed of by Mr. Justice Gaynor in the manner already described.

It would be interesting to know exactly by what process of reasoning the learned court, in its judicial wisdom, decided to dismiss an action of this character. Perhaps the following abstract from the stenographer's minutes of the trial will tend to throw some light on this phase of the case:

By the Court; "The evidence in this case is, at the most, that the amount of morphine in this drug, as put up by the pharmacist, was light, one-tenth of a grain to a teaspoonful. There is no evidence here that an excessive dose of morphine was put up. I dismiss the complaint. That it had an unusual effect on this woman is not enough."

In view of the medical testimony, this is a remarkable opinion, and can be accounted for, it seems to me, only under the suggestion of misapprehension.

The language of the court, in its dismissal of the case, expressly calls attention to the fact that morphine was dispensed whereas the evidence shows that no morphine was prescribed. What then had become of the physician's prescription? The learned judge was constantly laboring under the impression that morphine and heroin are identical, whereas nothing can be further from the real fact, as a reference to any medical authority will show. The two drugs are as distinct as they can be, both in their chemical constituents, and in their therapeutic effects.

Even if the drugs were identical the learned court says distinctly that one-tenth of a grain was dispensed whereas the prescription calls for one twenty-fourth of a grain. Is it possible that the prescription is to be ignored and that human lives are to be placed in jeopardy in this reckless manner? Is it true that the courts will permit the patient to be deprived in this way of the physician's knowledge and skill and also that his services are to be superseded by the druggist who can have no knowledge of the general subject? Is there no contractual obligation in the premises? If not, the physician has arrived at a period of his professional career when he must, of necessity, dispense his own prescriptions in order to prevent the poisoning of his patients by the dispensing druggist.

"There is no evidence here," says Mr. Justice Gaynor in his opinion, "that an excessive dose of morphine was put up." Let us see for a moment what the evidence in the case really is on that point.

Abstracted from the testimony of Dr. Cruikshank.

"I found the patient suffering from acute opium poisoning. Her pupils were contracted, her respirations were lowered, and she was drowsy. She suffered from nausea and vomiting particularly when her head was raised from the pillow. Her symptoms were characteristic of an overdose of opium."

If the courts have some mysterious way by which they are enabled to diagnose an "excessive dose of morphine" except by means of the sworn testimony of medical men who describe the symptoms and other clinical phenomena, I have never been made aware of it. I can speak only for the medical profession. In this case, however, the learned justice held that the testimony of the druggist who had actually made the substitution, was admissible and guiding to the court as to whether or not for this particular patient, a safe dose of the combined alkaloids of opium had been dispensed. Of course, the druggist could not in any possible way possess knowledge of her physical condition, nothing whatever concerning her susceptibility to the effects of drugs; no knowledge whatever about the age of the patient, whether a child or an adult; in fact, no therapeutic knowledge as the result of theoretical training or clinical experience, and a thoroughly interested witness in every sense. A witness who so far forgot his relation to the court as to misinform the learned justice by swearing that the prescription concerning which he is testifying, calls for a "patent medicine," when, as a matter of fact, the medicine prescribed is a strictly ethical preparation, the full formula of which is printed on each label. A preparation which is manufactured by a chemical house of over seventy-five years' standing—a house well known all over the United States and in Europe for the strict integrity of its pharmaceutical products. The witness might as well have told the court that Squibbs' compound tincture of opium is a patent medicine. There would have been as much truth in the one statement as in the other. When asked by counsel if the preparation in question is "known," his answer is, "No, not known to the trade in that section of the town," meaning the portion of the city in which the store in which he is employed is situated. Of what value is the testimony of a witness, as to an overdose of opium, who swears that the emetic dose of ipecac is one-quarter of a grain, that morphine will have the same effect upon the weakened and debilitated as upon the strong and robust, who informs the court that one-quarter of a grain of morphine given every hour "might upset a patient?"

At this point, absurdity having reached its height, I prefer to quote the testimony of the witness from the stenographic minutes of the trial:

Q. When you added the heroin, one-twenty-fourth of a grain to a teaspoonful and one-sixteenth of a grain morphine acetate, how much morphine does that make? A. About one-tenth of a grain to the dose.

Q. So that this prescription as you put it up and delivered to this plaintiff contained about one-tenth of a grain of morphine to each teaspoonful of fluid? A. Right.

Q. Is one-tenth of a grain of morphine to a teaspoonful of fluid, administered once every four hours, a safe dose? (Objected to as not coming from an expert.)

The Court: I will take if he knows. (To the witness) You are a licensed chemist, are you not? A. I am a licensed chemist.

By Mr. Nadal: Q. Is that a safe dose or not? A. Yes, sir, perfectly. (Same objection, ruling and exception.)

By the Court: Q. How high a dose would be in-

jurious for an adult? A. One-quarter of a grain every hour might upset a patient.

Mr. Nadal: Q. One-quarter of a grain? A. Yes.

By the Court: Q. Might upset them? A. Put them under the influence of morphine. (Same exception.)

By the Court: Q. One-quarter of a grain every four hours would upset them? A. Every hour.

By Mr. Driggs: Q. You mean an adult person in health? A. An ordinary adult—every adult.

Q. How about a woman already weakened with hemorrhages; would it have a greater effect upon such a patient than upon a patient in health? A. What, a quarter of a grain?

Q. Yes. A. I don't think it would.

By Mr. Driggs: Q. Who do you mean considered this to be a safe amount—yourself?

Q. Did you know what was the matter with this lady at the time you took this prescription from her? A. No.

Q. Did you know that she was very susceptible to morphine? A. No.

Q. You gave her something which contained morphine? A. Heroin is morphine in form.

Q. Did you know that this Elixir Pinus Compositus Merrill's contains morphine, one-sixteenth of a grain? A. Yes, sir.

Q. And this is what you used, adding to it one-twenty-fourth of a grain of heroin? A. Yes.

Q. You take this heroin, one-twenty-fourth of a grain to the teaspoonful and then this morphine in the bottle you take it from, one-sixteenth of a grain to the teaspoonful, is that a large dose of morphine? A. No, sir. (Excepted to as not coming from an expert.)

Q. I understand you to know the properties of these drugs and their effects, do you? A. Yes, sir, I do.

Q. What kind of a dose would these two combined make? A. A perfectly safe dose.

By Mr. Driggs: Q. How do you know the effects of morphine on the human system? A. I take it from the National Dispensatory.

Q. You never had a medical education, had you? A. No.

Q. You are not a physician, are you? A. No.

The learned Court, in its opinion, further says: "That it had (meaning the medicine) an unusual effect on this woman is not enough."

Let us see if we can throw any light on what his honor is pleased to call an "unusual effect." That the medicine had the effect of making the plaintiff sick is conceded in this part of the opinion. Just here the following testimony of Mr. Wilson becomes still more interesting:

Q. When you received this prescription, what did you do? A. I called up our main store, No. 456 Fulton street, to ascertain if they had Elixir Pinus Comp. with Heroin (Merrill's); they said no; then I called the doctor up to find out what dose of heroin he intended to be added.

Q. Doctor who? A. Dr. Cruikshank; he was not there and I took the liberty to give what was considered a perfectly safe dose, which is one-twenty-fourth of a grain of heroin to a teaspoonful.

Q. One-twenty-fourth of a grain to a teaspoonful? A. Yes, sir.

By the Court: Q. That is a safe dose? A. Yes, sir.

Q. You are sure you put no more in? A. Yes, sir.

Q. How many grains did you put in the bottle? A. A grain and a half.

By Mr. Nadal: Q. And that you added, as I un-

derstand you, to the Elixir Pinus Comp., you already had? A. Yes, sir.

Who is to say, in the face of this evidence, what amount of opium or what preparation of that drug was finally administered to the plaintiff? In the preparation of prescriptions, in the manufacture of pharmaceutical products and also in the combining of chemicals for human consumption, much depends upon the manner in which the drugs are put together. Pharmaceutical chemistry is a special branch of science which deals with very important questions along this line. During the past quarter of a century this branch of the work has made advancing strides until it has reached almost perfection. The retail druggist is no longer called upon, with his crude and limited methods, to manufacture preparations which eventually become the ingredients of physicians' prescriptions, to the extent that was required of him in former years. In this work he has been succeeded by the large chemical houses which employ the services of the best pharmaceutical chemists they can obtain, regardless of expense, with the result that the consumer is enabled to obtain much more efficacious and palatable medicines than ever before in the history of pharmacy. This is particularly true of those preparations manufactured in the United States. The physician is thereby enabled to administer to his patient medicinal therapeutic agents which are manufactured by large and responsible pharmaceutical and chemical manufacturing establishments, the names of which establishments are sufficient guarantee of accuracy of preparation and chemical purity. It is fitting, therefore, that some attention should be given to the manner in which this prescription was prepared. Did the druggist dispense heroin proper in his substitution, or did he use the hydrochlorate of heroin? If the former were used an insoluble and consequently a more dangerous drug was added to a salt of morphine already in solution, neither of which drugs was intended for the patient's use, and neither of which was prescribed for her. If the latter, namely, the hydrochlorate of heroin (the drug which the patient should have received) was in a haphazard way added to the expectorant mixture, the tannin contained in the wild cherry bark and other vegetable substances which formed a part of that fluid, would in all reasonable certainty be chemically acted upon and a tannate of heroin, which is an unknown quantity in medicinal therapeutics, be formed.

Thus it will be seen that nothing short of a careful quantitative chemical analysis can, by any possibility, determine what preparation or what dose of opium reached the plaintiff in this case, once the substitution which has been testified to was made. The fact remains that the druggist dispensed, instead of a perfectly clear mixture, which should appear bright red in color, a thick, muddy looking fluid, which he, himself, swears contained heroin *itself* in addition to morphine acetate. Is it then unreasonable to conclude that the learned justice misunderstood the real situation when he stated that there was no evidence that an excessive dose was "put up"?

The courts should be intolerant of intrusion upon the physician's prescription by the druggist. The sick and helpless should not be surrounded with the spirit of commercialism which has become so prevalent and far-reaching in the dealing with matters appertaining to public welfare. Our very system of jurisprudence would seem to be on trial in the adjudication of matters of this character. To allow the physician's prescription to be tampered with and violated in the manner which the evidence proves to have been the fact in the case under consideration, is a retrogressive step

in our civilization which is a serious menace to the community. Very truly yours,

WILLIAM J. CRUIKSHANK.

102 Fort Greene Pl., Brooklyn, N. Y.

SOCIETY PROCEEDINGS.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, held February 10, 1904.

The President, Otto H. Schultze, M.D., in the Chair.

Hemorrhagic Meningoencephalitis.—Dr. M. G. Schlapp presented a specimen taken from a case of hemorrhagic meningoencephalitis in a child sixteen months old. The child had been well until December 25, when it developed a cough, an acute foul-smelling rhinitis lasting four or five days. At the end of this period convulsions appeared on the left side, involving the left leg, arm, and face, later on spreading to the right side. It had previously been noticed by the mother that the fontanelles had bulged very much. The child had edema, most marked about the eyes, nose and forehead. This lasted only for about an hour and then disappeared. The convulsions grew worse and the mother took the child to a hospital where the fontanelles were punctured, showing a collection of fluid, but no change of anything else was noted. As the child grew worse, clonic and tonic convulsions developed. The child practically remained in a tonic convulsion. Acute hydrocephalus was diagnosed. About one and one-half hours after puncturing the fontanelles, the child died.

The autopsy was performed by Dr. Schultze, who was allowed only to open the cerebral cavity. He took out the brain and found a hemorrhagic area extending from the frontal pole to the precuneus on both medial surfaces, and laterally the hemorrhage extended about one and one-half inches from the longitudinal fissure. This hemorrhage discolored the brain. In the longitudinal sinus was found a thrombus. It did not fill out the sinus completely. Most of the veins extending laterally from the longitudinal sinus were thrombosed. This condition on section looked exactly like cases described as non-purulent hemorrhagic encephalitis. The hemorrhage was confined to the cortex of the brain, giving the peculiar dotted appearance of the non-purulent hemorrhagic encephalitis. It could be mistaken for this type of encephalitis. The thrombus of the longitudinal sinus most likely caused the condition and was probably an infectious one. Besides hemorrhage and thrombosis there was a meningitis extending over the greater area of the brain. It was not confined to the hemorrhagic area, but extended to apparently normal areas. This meningitis was of the cellular type made up of round cell infiltration, mononuclear leucocytes, not pus cells. It was likely that the meningitis was caused by the same condition that caused the thrombus, or the thrombus was secondary to the meningitis. It was possible that this infection might have passed through the lymph spaces, Pacchionian bodies, into the longitudinal sinus, in that way producing thrombus. It might have been produced through the blood vessel in the same way the meningitis was produced. Round cell infiltration around the blood vessels and meninges was well shown.

Hemorrhagic Myelitis.—Dr. Schlapp also showed a specimen from a case of this affection in a man, forty-eight years old, who two years previous to this attack of myelitis had had an attack of malaria. His

tory of syphilis, alcoholism, etc., negative. About two months before this trouble came on he had an orchitis from a trauma. The testicle was very much swollen. It was removed by a surgeon in California. The surgeon had told him that the nature of the lesion was tuberculous. The wound healed and he felt fairly well after the operation. He took a trip to the mountains where he strained himself walking and driving over rough roads, and after a particularly long drive he had chills and felt weak in the legs. Then numbness was felt in the soles of the feet and gluteal region. The numbness disappeared and the man came East. While here the numbness again came on and in two or three days it extended from the plantar surface of the feet up to the medial part of the thigh. The gluteal region was also involved. When seen by Dr. Schlapp the man had no definite objective symptoms, although at that time it was suspicious of beginning myelitis. There was no temperature and the pulse was regular—80 to 84. The man was put to bed and watched. The day after Dr. Schlapp had seen him, he developed a subnormal temperature—97° to 96.8° F. This kept up for several days. In the meantime the numbness grew worse and objective symptoms appeared; there was sensory disturbance, marked pain, and temperature, sense disturbed and ataxia; later complete anesthesia below the knees, spreading up the legs and body to the region of the navel; remained one or two days in this condition and then spread to the arms and the man died of a condition resembling paralysis of the vagus and respiratory and heart centers. One and one-half days before death he developed a temperature of 103° F; before that it had been subnormal. On autopsy, Dr. Elser found cirrhosis of the liver and pneumonia, which had existed several days before his death. He had had also acute parenchymatous nephritis. The bones of the spinal column were normal; no infectious condition from that source. No meningitis, no disturbance of the pelvic organs. The spinal cord from the second lumbar segment to the fourth cervical presented small hemorrhages throughout all the tissue; white and gray matter was affected alike. The area of hemorrhage varied in some places more than in others less marked, but distinctly involving the tissue of the cord. At that time the case was diagnosed (and subsequent histological examination verified this conclusion) as non-purulent hemorrhagic myelitis. No meningitis. These hemorrhagic conditions of the cord, Dr. Schlapp said, were not very common and the question arose, What was their cause? Cultures were made but they were negative. A Gram stain made of a section was also negative. Nothing definite was found in the section. A drawing of a section of the cord was shown.

Dr. Noyes, in the discussion, said that the first case would be extremely interesting if a report of the cerebrospinal fluid or blood from the ventricle had been made. He understood that this had not been done. In a case reported to the Neurological Society, Dr. Brooks had spoken of the difficulties of diagnosis of hemorrhagic meningoencephalitis, and careful examination of the cerebrospinal fluid sometimes facilitated this diagnosis. Much careful work had been done in the city on the cytology of the cerebrospinal fluid during the last few months. Recent articles in some French journals report that in almost all hemorrhagic conditions, such as hemorrhage into the ventricle, and hemorrhagic encephalitis, the cerebrospinal fluid showed a reddish discoloration of the serum or red corpuscles; and this phe-

nomenon frequently makes a positive differential diagnosis possible. Dr. Schlapp had spoken of infiltration of mononuclear leucocytes of the tissues. It was interesting to compare the presence of lymphocytes in the cerebrospinal fluid and blood with the presence of the same type of cells in the tissues, lymphocytes in the fluids being chiefly found in certain classes of cases, as syphilis or tuberculosis, while polynuclear cells indicate acute infections. Whether this coincided with what could be demonstrated with sections, or how far it occurred with types of leucocytosis in general, Dr. Noyes did not know. The diagnosis of meningoencephalitis though rather difficult could be made by excluding the more common general and local lesions of the brain. It was sometimes found at autopsy where other diagnoses had been made.

In regard to Dr. Schlapp's second case, Dr. Noyes said it was extremely interesting because so many of those transient cord conditions are met with in cases where paralyzes have come and disappeared, and one can only infer that some vascular lesions have occurred. Possibly the vessels may have been obliterated but the changes may not have gone so far as the cases Dr. Schlapp had shown. Probably lesions of this type occur more frequently than is supposed.

Dr. Schultze said the cases were also interesting from a medicolegal standpoint. As far as his own experience went he thought the occurrence of a true hemorrhagic type of inflammation rare. The cases which Dr. Schlapp had described might readily be mistaken for cases of trauma unless that condition were kept in mind. It was possible for an inflammation of the pia and the brain or cord, or for a thrombosis of the longitudinal sinus, to produce a condition which might be mistaken for laceration of tissue with subsequent hemorrhage.

Dr. Schlapp said that he considered the remarks made by Dr. Noyes as important, as to lumbar puncture in the second case. In the first case he thought diagnosis would have been made before if the physician had taken the mother's report. She said the child developed convulsions on one side, then on both. The child had edema of the tissues of the frontal bone over the eyes and eyelids. This, he thought, would have led the physician to think of thrombus of the longitudinal sinus at once. If the eyes had been examined a protrusion of the central vessels of the eyes would have been observed.

Teratoma of the Broad Ligament.—Dr. Ferdinand M. Jeffries said, in presenting a teratoma of the broad ligament, that he thought the specimen of more than usual interest. He thought it unique in character. It was taken from a girl of seventeen—a virgin. The history dated merely two days previous to the operation, although since the operation, when the growth was removed, the surgeon had gleaned the fact that the girl had been troubled for some time with constipation and that she was very easily fatigued, and on some occasions suffered considerable pain which was supposed to be in some way connected with the constipation. Two days previous to the operation the girl consulted her family physician, but it was merely for constipation. He gave her some laxative. Next day he called, and found the patient in distress with no action of the bowels, and upon examination found an enlargement of the left inguinal region, which he had not seen at the first examination. He did some manipulation and increased the laxative dose. The next day he was called in great haste and told that quite an enlargement was noticeable in the left inguinal region. Then he called in a surgeon. There had been, up to that time,

no action of the bowels. The surgeon was at a loss to know what it was, but there had been a state of collapse and temperature previous to his arrival. The surgeon advised operation, and he went in through the cul-de-sac. As soon as he made an incision he found a hematoma. He got rid of the clot of blood and in his search found what appeared to be membrane, and made up his mind that there was pus. He made an incision through the membrane, but instead of pus coming, there was a serosanguineous fluid containing a lot of fat, partially saponified or emulsified. He traced this along and came to the growth shown by the speaker. Although found in the left inguinal region, it was attached to the right broad ligament. The surgeon took the entire growth out through the cul-de-sac of Douglas. It was a cyst about the size of a child's head. It was a body covered with skin, having peculiar toe-like enlargements, some large, others small. There was floating with the fat a quantity of hair. The cyst contained bone and cartilage; the one described as toe-like is a picture of the tarsus bone. Some of these bones were harder and less cartilaginous than others. No histological examination had been made.

Dr. Jeffries also showed a cast of the bronchial tubes, a regular tree from a case of plastic bronchitis, more often seen in pictures than in reality. He also showed a sample of urine of unusual interest. It had been put under the microscope. It was urine filled with amebæ. At first it was thought that they might be due to water used to wash the bottle in which the urine was placed, or perhaps the centrifuge or pipette. This urine, in every field the speaker had seen with the one-sixth objective, contained seven or eight amebæ, some exceedingly large, one or two half filling the diameter of the one-sixth objective. The patient was a young man, about thirty-five years of age, who had measles. He had a stricture and his urine contained pus, and apparently had done so for a considerable period of time previous to the present attack of measles. The sample was presented for enlightenment. It was conceivable that there might, in some cases of dysentery, be new channels opened up from the bladder and *Amæba coli* might enter, but he thought these were *Proteus amæba*—perhaps there was no difference except in the locality where found. These amebæ did not seem to contain blood cells. He was not prepared to state what bodies were contained. Dr. Jeffries had that day been able to find amebæ in a case of amebic dysentery where he could show blood corpuscles. These did not look like chlorophyll-bearing bodies.

The Bacteriology of the Blood in Typhoid Fever; a Report on Sixty Cases, and a Statistical Study.—This was the subject of Drs. Warren Coleman and B. H. Buxton. The authors made bacteriological examinations of the blood in 60 cases of typhoid fever in Bellevue Hospital, and have collected 544 similar cases from the literature, giving a total of 604 cases. Their practice was to distribute 10 c.c. of blood taken from one of the large veins at the elbow, into four flasks each containing 100 c.c. of broth and to incubate at 37° C. When the cultures were positive they tested the bacilli in glucose gelatine, litmus milk, neutral red agar, and other differentiating media. They were also tested for their agglutinating properties in an active serum. A reaction at 1:100 was considered sufficient for diagnostic purposes. Believing that paratyphoid infections should be considered clinically as cases of typhoid fever, they have included in their totals the 23 cases of so-called paratyphoid fever in which bacilli have been found in the blood. Seventy-five per cent. of the 604 cases showed the presence of bacilli in the blood at some stage of the disease, and the authors felt inclined to

regard even this as somewhat lower than may be expected in future investigations, since the most recent records, those of Busquet, Courmont and Tesien, show that with the most improved methods the bacilli are practically uniformly present in the first three weeks of the disease. Analyzed by the week in which the examination was made it was found that: (1) Of 85 cases in the first week positive results were obtained in 79, or 93 per cent.; (2) of 198 cases in the second week, positive results were obtained in 151, or 76 per cent.; (3) of 115 cases in the third week, positive results were obtained in 65, or 56 per cent.; (4) of 55 cases in the fourth week, positive results were obtained in 18, or 32.7 per cent.

The striking fact brought out by this analysis was the large percentage of positive results obtained in the first week of typhoid fever with the steady decline thereafter. From this it appears that the earliest and principal seat of infection in typhoid fever is the blood. The authors believe that the bacillus disappears from the blood about the end of the third week in the ordinary case of typhoid fever, and that its failure to disappear at this time means the prolongation of the clinical course of the disease.

Twenty-one cases were examined during a relapse, and the bacillus was found in all but three of them. Ten per cent. of the 604 cases presented the bacillus in the blood before the Widal reaction could be obtained. The Widal reaction is often delayed to the twentieth or the thirtieth day; but in one of their cases did not appear until the seventy-first day; hence it was felt that the absence of this reaction by no means justifies the diagnosis of paratyphoid infection. Two of the authors' cases gave the *Bacillus coli communis* in pure culture in the blood. Both cases were mild and the question was raised whether the colon bacillus might cause a primary systemic infection.

Dr. W. Gilman Thompson said an absolutely accurate test would be of great value in an early diagnosis of typhoid fever, and also in those cases in which one may be in doubt later in the disease as between the existence of typhoid fever and some of the conditions for which it is occasionally mistaken, like an obscure case of malignant endocarditis. In regard to the bacteriological examination being of use in very early diagnosis, he asked Dr. Coleman how soon he could guarantee a positive result, if such existed, after obtaining a specimen of the blood.

Dr. Coleman replied in about three days.

Dr. Thompson said that that reduced the value of the result for early diagnosis. If the specimen were obtained on the fourth day, and three or four more days elapsed before results were obtained, the test did not improve on the Widal reaction, which was often apparent by the end of the first week, or upon the appearance of eruption, etc. In that respect he thought the test a disappointment, as an early one to be used as a help in the matter of diagnosis at the bedside. Dr. Thompson had, however, had a number of cases examined at the Presbyterian Hospital, positively demonstrating the presence of bacilli before the Widal reaction was obtained. The Widal reaction had been behaving in a peculiar way. When the test was first used in the city, the speaker was interested in collecting data. He gathered data from other clinicians to the number of five hundred cases. In 93 per cent. of these cases the Widal reaction was found during the active course of the disease, a large percentage being at the end of the first week. With recent tests the reaction was absent in many cases typical, clinically, of typhoid fever, which tests are not returned as positive either from the Health Board or specially trained observers

in the laboratory even after three or four weeks, or perhaps when the patients are in convalescence or relapse. The technic of the Widal test had improved and examiners were reluctant to report a positive reaction until it was obtainable with a much greater degree of dilution than that at first employed. Dr. Thompson believed that bacteriological reaction of the blood could yet be made more satisfactory, and used as an earlier test than the Widal reaction.

The reference of Dr. Coleman to the new aspect in which typhoid fever is regarded—that is, as a blood toxemia—was very interesting, for it afforded an explanation of certain phenomena of the disease, particularly such complications as involved the gall-bladder, periostitis of the rib, phlebitis, etc.

In regard to the paratyphoid germ, demonstration of its presence in the blood was not as yet of any real clinical value in distinguishing the varieties of typhoid fever at the bedside. Paratyphoid had been reported to him by bacteriologists, when he had been entirely unconscious from the clinical standpoint that he was dealing with anything but ordinary typhoid fever. The bacilli of the ordinary typhoid had been found in mild and severe cases, and so it seemed in regard to paratyphoid bacilli. Five cases of apparent typhoid infection had been brought to the Presbyterian Hospital from a tenement house. They were thoroughly investigated by the Health Board from an etiological standpoint; and one which came to autopsy appeared to be typhoid fever, but paratyphoid was reported in two or three of the cases. These cases did not present any clinical peculiarities. This recalls the difficulty in differentiating degrees of malignancy in types of diphtheria and tuberculosis germs. The typhoid bacteriology is interesting in connection with the study of the natural history, in general, of these germs. Dr. Coleman had emphasized the futility of the use of intestinal antiseptics in typhoid fever. The speaker thought the discovery of these bacteriological tests ought to put a final quietus on the attempts to treat typhoid fever with intestinal antiseptics alone. No better proof of this was needed than that brought out by such research as that under discussion.

Dr. Norris asked how many cases of typhoid fever Dr. Coleman had found in which he could not obtain the Widal reaction, and in how many cases he found concurrent infection with typhoid. It was rather hard to draw conclusions from broth cultures because in that medium at no time could the original number of bacilli found in the blood be estimated. It was a favorable medium for the isolation of typhoid bacilli, however.

Dr. Field said that he objected to their considering a disease as a septicemia because microorganisms were found in the blood. Dr. Libman had shown that numerous surgical cases suffering from localized *Staphylococcus aureus* infections showed many staphylococci in the blood. He thought that they were absorbed from the point of infection and that they did not increase or multiply in the blood stream. In typhoid fever, he said, there were a great number of typhoid bacilli in the intestine, and it was perfectly conceivable that these organisms could find their way into the blood stream by way of the lacteals, especially when there was food undergoing digestion. Where the number of typhoid bacilli per c.c. had been determined they had always been found to be few. In those cases of typhoid fever which have been called typhoid septicemia, the bacilli were present in large numbers per c.c. and the clinical picture was entirely different. The speaker did not think it proper, therefore, to term the disease, as ordinarily seen, a septicemia because a few bacteria were found constantly or in a large proportion of the cases in the blood

stream. He did not think that it was in the blood stream that they proliferated and caused that profound toxemia seen in this condition.

Dr. Libman said that he agreed with Dr. Field that typhoid fever should not be considered as a general disease simply because some bacilli were found in the blood. It was different with cases in which there were no local lesions. To illustrate the point that bacteria might be in the blood, even in large numbers, without setting up any secondary foci or seeming to make much trouble, he referred to a case of osteomyelitis of the humerus which he had recently seen. The pus from the bone contained the *Staphylococcus aureus* in pure culture and by means of a blood culture it was demonstrated that there were five hundred colonies of the *Staphylococcus aureus* to each c.c. of blood. After the focus in the bone was opened up the temperature dropped considerably and four days after the operation the blood was found sterile and the patient recovered.

He also thought that it was hardly conceivable that the symptoms of typhoid fever, as a rule, were due to the presence of the bacteria in the blood because so few of them were usually found. He believed that it might be possible to obtain results earlier if inoculations were made from the flasks containing the blood even before any turbidity developed from the growth of bacteria. With the Widal reaction his results had differed from those of Dr. Thompson. The results had been better than those in previous years. During September, October and November, every case of typhoid had given a positive Widal reaction within three or four days after admission.

He believed that the finding of the typhoid bacillus was of importance in establishing the etiology of otherwise obscure conditions. There had been admitted into the service of Dr. Rudisch, at the Mt. Sinai Hospital, a patient suffering for twenty-four hours from symptoms apparently due to intestinal perforation. On operation a localized pus sac was found, a culture from which showed *Staphylococcus aureus* only. There were no typhoid bacilli in the urine or stools, but the blood, two days after admission, was proven by culture to contain typhoid bacilli. The Widal reaction became positive about a week later. In that case the diagnosis would not have been definitely established so early without the blood culture.

Dr. Coleman said that only one or two of the authors consulted made mention of mixed infections in typhoid fever. In a few cases Busquet had found other organisms than the typhoid bacillus; e.g., streptococci, staphylococci and pneumococci.

Dr. Buxton said he had found no evidence of mixed infections in the cultures.

Dr. Coleman agreed with Dr. Field that typhoid septicemia was not a good term, and said that they had used it only to emphasize the fact that typhoid fever was not an intestinal disease, susceptible of modification by means of intestinal antiseptics.

Demonstration of Coagulum Production by Growth of Bacteria in Sugar Media.—Dr. E. Libman said that in a paper published several years ago on the features of the growth of bacteria in media containing both sugars and serum, he had mentioned that he had occasionally seen coagulum production in such media, and had suggested that the phenomenon might become of some importance in explaining the occurrence of some cases of thrombosis in infections, especially in diabetes. Since that time Dr. Flexner had brought up the question of the agglutination of red blood cells as a cause of thrombosis. The flask which Dr. Libman presented contained streptococci growing in a medium containing one-half per cent. glucose bouillon, two parts,

and serum, one part. In it could be seen very nicely the very extensive coagulation, and at the bottom of the flask marked agglutination of the erythrocytes. Central flasks containing no cocci showed no changes after several days.

Some Peculiar Changes in the Fluid of a Pleural Effusion.—Dr. E. Libman said that this fluid when first obtained, by aspiration of a chest in a case of pneumonia, was light yellowish in color and very slightly turbid. Microscopically it contained very few pus cells and some pneumococci. On standing in the thermostat twenty-four hours a precipitate began to form in the tube and the fluid turned greenish in color. After forty-eight hours the fluid was decidedly green, no longer transparent, and there was a heavy, clumpy deposit at the bottom of the tube. Without a microscopic examination one would have believed that the fluid came from a case of empyema. The specimen was shown merely to indicate that certain appearances which are seen in some exudates can develop as a result of bacterial growth outside of the body. It had been observed that certain streptococci could produce a greenish color in media which contained a decided amount of blood and occasionally fluid obtained from the cerebrospinal canal was seen to turn slightly green after standing a few days, but the marked change which the speaker had described, from a practically clear fluid to a fluid resembling closely an empyema fluid, had not, he thought, been noted.

CHICAGO MEDICAL AND ORTHOPEDIC SOCIETIES.

Joint Meeting, held March 30, 1904.

The President of the Chicago Orthopedic Society, Arthur B. Hosmer, M.D., in the Chair.

Multiple Lipomata.—Dr. Weller Van Hook exhibited a man, sixty years of age, with multiple lipomata of the neck. The patient first noticed these tumors nine years ago. At first, they annoyed him on account of the pressure which they made upon his collar button. The tumors at that time were about the size of a pea, but within a year or so they had attained their present size. The patient had not found it necessary, however, to wear a collar of larger size on account of the tumors. At the time of the incision, there was no attempt made to remove the entire tumors, but only portions of them were taken away. This operation was done by another surgeon. The tumors had been practically stationary in size for five years. Dr. Van Hook stated that symmetrical lipomata of the neck region were not very rare, but that this was a pronounced case. Patient had large lipomata in front of the neck which he said was not an unusual concomitant of such cases.

Gunshot Wound of the Olecranon Process.—The next case presented by Dr. Van Hook was one of considerable interest, the patient having sustained a gunshot wound in the month of November, the bullet lodging under the olecranon process. On this account the patient was unable to fully extend the elbow. The X-ray plates were probably the most interesting feature of the exhibit. He made an incision about three inches long, and extracted the bullet without much difficulty. The patient had a marked degree of ankylosis or incomplete motion before the operation, but after the bullet was removed motion improved materially. There was still some incompleteness of motion, but it was gradually improving. The patient was able to swing a sledge hammer.

Double Congenital Dislocation of the Heads of the Radii.—Dr. Van Hook showed a little girl with double congenital dislocation of the heads of the radii

upon whom he had operated, saying that such cases were quite uncommon, but not very rare. One of Hoffa's assistants collected 31 cases from the literature. Of 12 cases that came under the observation of Hoffa, 8 were backward dislocations, and 4 forward. In the speaker's case the dislocations were both forward. The arms were in complete extension; no flexion could be effected; but after resection of the heads of the radii, it was possible to get some flexion. There was elongation of the radii which was common in such cases, and this fact prevented flexion at the elbows. The joints were imperfectly developed. The synovial cavities were not sufficiently extensive, and it had been the effort of months of treatment which he had given the case to extend the range of motion in the joints by occasional manipulation under nitrous oxide gas anesthesia. He believed the joint capsules were doing better work now than they did. There was certainly more motion than there was soon after the operations were undertaken. The little patient was now able to put her hand up to her face, which she could not do before treatment was instituted. The operation for the relief of this deformity was performed by Dieffenbach in the earlier part of the last century, when a resection of the entire elbow-joint was done, with fairly good result, and afterward more rapidly resecting the heads of the radii. He said that the heads of the radii had been resected by Hoffa, with good results. Resection of the heads of the radii was indicated in those cases where there was well-marked elongation of the radii, the radius being shortened sufficiently to come into fairly good articulation with the other structures. The etiology of this deformity had elicited considerable discussion. Some had regarded it as due to intrauterine improper position, while others had considered it to be due to unequal and improper growth of the bones composing the elbow joint, and elongation of the radius being supposed to be the etiological factor in such dislocations. The muscles had never sufficiently developed about the elbow joint either above or below; but considerable development had taken place in his case since the treatment was begun last June. In looking up the literature, he stated that Abbott reported before the Pathological Society of London seven cases that had occurred in four generations of one family.

Dr. John Ridlon asked Dr. Van Hook why the arms did not fully straighten. He said that his explanation of not being able to flex them was perfectly clear, but that he did not mention the reason for their inability to fully straighten.

Dr. Van Hook replied that he had kept the little girl's elbows on one occasion for quite a little while in as great flexion as possible, and he thought some contracture was responsible for the inability to extend the arms as completely as at the beginning, but it was his desire to give more flexion in order that the child might reach her face and head rather than to maintain free extension. However, he was in hopes that he would be able to regain the lost extension. In reply to a question asked by the President, Dr. Van Hook answered that the ligamentous structures were imperfectly developed. The ligaments were very thin, and much spread out. It was easy to cut down upon the head of the bone and excise the semi-cartilaginous mass.

Compound Comminuted Fracture Associated with Dislocation of the Ankle-joint.—Dr. L. L. McArthur showed a patient upon whom he had operated for this fracture, which was associated with a dislocation of the ankle-joint. He mentioned how the fracture was produced, and said on admission to the hospital it was found possible to evert the patient's foot on the leg as a hinge, so that the upper surface of the astragalus

and articular surface, or what remained of the tibia, could be completely exposed. Black mud was ground into the deeper portions of the joint. The vessels of the foot were intact. After some hesitation, but reinforced by the statement of the patient that she would rather die than have an amputation, he decided to try and preserve the foot. Under anesthesia it was possible to open the joint as if one was about to make a resection of it, exposing the entire articular surface by simply turning the foot outward on the leg. The fibula was comminuted; the tibia was fractured, and the internal malleolus loosened from the tibia. The broken end of the tibia had the dirt ground into the pores of the bone. The end of the tibia was chiseled off and freshened; the black dirt washed out of the joint as thoroughly as possible, and 95 per cent. carbolic acid swabbed over the entire joint surface for thirty seconds, and following that the use of alcohol until all the whitening effect of the carbolic acid had disappeared. The tibial fragments were wired together; the lower fragment, fortunately being adherent to the internal lateral ligament, by simply wiring it to the shaft of the tibia allowed sufficient fixation of the foot to permit doing without a cast. On the three following days the patient was given three successive doses of the antitetanic serum to guard against the possibility of tetanus developing. It was the author's practice to do this in such cases, and he had done so for seven or eight years. At the end of four weeks the patient left the hospital. The result was excellent. He emphasized the desirability of trying, with the consent and understanding of the patient, to save all limbs in which circulation was good, with the opportunity for a prompt amputation, should it become necessary, afterward. It was absurd to hope much from the antitetanic serum after the toxins had become colligated with the nervous tissue of the spinal cord.

Compound Comminuted Intercondyle Fracture.—The second case Dr. McArthur called attention to was one of compound, comminuted fracture involving the knee-joint, the character of the fracture being oblique intercondylar, with one fragment sticking through the skin. The patient was a sign painter, who fell from a scaffolding, striking with great violence, fracturing his knee, and driving a fragment through the integument. Macroscopic dirt was to be seen on the fragments. The wound was enlarged, and the fragments wired together, a useful joint being obtained. A skiagraph showed the fragments nicely united and the wire *in situ*.

Dr. Hosmer asked whether Dr. McArthur had seen any toxic effects from the use of 95 per cent. carbolic acid in joint injuries, that is, applying it for thirty or forty seconds where there was extensive injury of bone.

Dr. McArthur replied that he had never seen any toxic effects from it. He thought, however, that this was a particularly appropriate case in which to use it.

SYMPOSIUM ON TUBERCULOUS SPONDYLITIS.

Etiology.—Dr. Edwin W. Ryerson discussed this phase of the subject, saying that tuberculous spondylitis was applied to a destructive tuberculous process attacking the vertebrae. It occurred in the anterior portion, or body, of the vertebra, the part which did the supporting and weight-bearing of the upper half of the individual. It practically never affected the rest of the vertebrae, the pedicles, and laminae, and processes, but the intervertebral discs were often destroyed by the direct extension of the disease. The disease was caused by the local deposit of tubercle bacilli which had been disseminated into the blood current, either from an older focus somewhere else in the patient's body, or from some direct infection of the circulation through the skin or mucous membranes. This latter method was rare,

but was supposed by König to have occurred in several cases of joint tuberculosis, where at autopsy no antecedent focus could be found. The usual infection route, however, was undoubtedly through the lymphatic glands, bronchial, mesenteric or cervical, from which the bacilli found their way into the circulation individually or in small embolic masses, and traveled through the blood vessels until arrested by some obscure, determining cause, perhaps a minute hemorrhage due to slight traumatism, or possibly a little defect in the loosely constructed vessel walls, which allowed a mural implantation. The disease was most prevalent among the ill-nourished children of the poor, living in localities where they were exposed to tuberculous infection, in overcrowded and unsanitary dwellings. A large proportion of such children were shown at autopsy to have glandular tuberculosis, even though no clinical manifestations may have existed. Moreover, a clear hereditary predisposition had been demonstrated in from 25 to 70 per cent. of the cases of Pott's disease, the statistics of the different authors varying within those limits. Both sexes were about equally represented, boys being slightly more numerous than girls. Age was a powerful factor, for 85 per cent. of all cases began in the first decade of life, and fifty per cent. between the third and fifth years. No age was exempt, since cases were on record as young as two months, and as old as seventy-seven years. The disease was very common, and formed nearly half of all the various tubercular joint lesions. The portion of the spine most frequently affected was stated by Taylor to be the cervical region, but most other observers considered the junction of the dorsal and lumbar regions to be the most vulnerable. When in the cervical or lumbar vertebrae, the deformity was apt to be smaller and more successfully treated than when in the midthoracic region.

Diagnosis and Prognosis.—Dr. John L. Porter said that in no form of tuberculosis did an early diagnosis mean more to the patient than in tuberculosis of the spine. Until the diagnosis was made, efficient, intelligent treatment could not be instituted. With an early diagnosis, not only was the treatment made more effective, and the prognosis improved, but the patient might often be saved a distressing deformity which added to an already crippled existence a burden of mental suffering and pain. He believed that a diagnosis of spondylitis could and should be made in every case before any deformity had appeared; regardless of the age of the patient, in almost every case sufficient additional evidence might be elicited to enable one to decide with reasonable certainty whether it was tuberculosis or not. Stiffness and rigidity of the spinal muscles, limiting the normal freedom of motion, and producing involuntary spasm of the muscles when motion was attempted, were the earliest, the most constant, and the most reliable signs of joint trouble anywhere. He considered the signs and symptoms of spondylitis in detail, with relation to the different divisions of the spine. He believed more failures to diagnose spondylitis were due to lack of careful examination than to lack of knowledge; but he did know that diagnoses of colic, rheumatism, sciatica, or injury covered a multitude of errors. When practitioners remembered that spondylitis might cause any kind of pain, from headache, earache, to sciatica, and when they cultivated the habit of examining the spine for rigidity as carefully as they examined suspicious lungs for tubercle bacilli, the early diagnosis of tuberculous spondylitis would be more frequently made.

In the prognosis of tuberculous spondylitis, one had to consider (1) the factors concerned in the prognosis were the time at which the diagnosis is made and the

treatment begun; (2) individual resistance to the disease; (3) the patient's age; (4) the patient's environment. These, with the location of the disease in the spine, were the chief points in determining the prognosis. Each point was elaborated by the speaker.

Straightening of the Curvatures of Tuberculous Spondylitis.—Dr. John Ridlon, after mentioning the methods of straightening of curvatures in cases of tuberculous spondylitis, related his personal opinions and conclusions, to which he had arrived from his experience, which were: So long as the carious disease was active, and before structural shortening in the muscles and distortion in the ribs had taken place, and before any solidification had occurred at the point of disease, straightening of the spinal deformity was possible by gentle means, *i.e.*, without anesthetizing the patient. When the deformity was still increasing, even if some solidification had taken place, straightening could be made by force in certain regions, namely, where distorted ribs and structurally shortened muscles did not hinder, and in all regions some gain could be had by the use of reasonable force. But when solidification had become complete, or so complete that there had been no increase of deformity for some months, the use of unreasonable force to make the spine straight was to be deprecated. In the cervical region he had always feared to use force to effect straightening. On the other hand, he had never failed to straighten cervical deformity by gentle means, namely, traction during recumbency, in all cases presenting evidence of active disease. In the upper dorsal region it was very difficult to apply force advantageously, and equally difficult to maintain any correction that might be made; and he was of the opinion that gentle traction and prolonged recumbency with leverage would accomplish as much as force. Only occasionally did one effect a straightening in this region; generally one must be satisfied to prevent a development or an increase of the deformity. In the lower dorsal and dorso-lumbar regions, the most frequent site of spinal caries, forcible straightening was most readily effected, and gave the best results. In the lower lumbar and lumbo-sacral regions, it was difficult to maintain any correction accomplished by forcible methods, and it was perhaps as well to treat these cases by traction and leverage. In selecting cases for forcible straightening, one should reject cervical cases as dangerous, upper dorsal cases as too difficult to straighten, and lower lumbar cases as too difficult to hold. Cases where the deformity had not increased for six months or more should be rejected as cases in which the disease had healed; and cases of short duration and no great deformity should be rejected as exposing the patient to unnecessary risk, for these cases could be straightened equally well by gentle methods. Patients that had been subjected to forcible straightening must be kept in absolute recumbency for from eight months to one year at least, and the region straightened must be as carefully immobilized as if fractured. Relapse of deformity to some extent usually occurred, but it was due to ineffective immobilization, careless nursing, or too short a period of recumbency. By gentle methods real straightening was not to be expected in patients who were allowed to sit up and walk around, though sometimes a false straightening could be accomplished; that is to say, the patient as a whole could be made to look straighter, though the actual kyphosis remained the same. The anteroposterior leverage spine brace was effective as a straightening device only in the hands of one familiar with its mechanical possibilities; it was not to be recommended to the general practitioner of medicine or surgery. Combined traction and leverage, though the

most effective gentle means, was useless unless the patient was tractable and the nurse efficient. It should never be tried on an unruly patient, or where the nursing was inefficient. For most patients, cared for by the average nurse, and treated by any doctor other than an expert, a plaster jacket put on with the patient on Goldthwaite's frame, or some modification thereof, with the jacket sufficiently long both at the top and bottom would be found the most trustworthy device for immobilization, and when combined with recumbency for a long period, the most satisfactory method of treatment.

The Present Status of the Mechanical Treatment of Spondylitis.—Dr. Wallace Blanchard said that in considering the mechanical treatment of spondylitis it must be thoroughly understood that to get good ultimate results treatment should be begun at the earliest possible moment, and must be persisted in unrelentingly until a cure is effected. It is not surprising to meet with a diversity of opinions regarding the utility of the various forms of apparatus, for several surgeons may be equally successful in their ultimate results, each utilizing the appliances with which he is the most skilled. The form of apparatus or method of treatment is of minor importance as compared to a correct understanding of the principles involved, and a firm determination when a case was once undertaken to unrelentingly persevere as long as treatment might be necessary. Treatment by recumbency was frequently advisable in the early acute stages, and was occasionally necessary in cases that had become considerably advanced without any adequate treatment and with considerable deformity, with general physical weakness, and more or less advanced Pott's paraplegia. When recumbent treatment was employed it should be faithfully carried out with the view of having the patient on his feet with his spine safely protected in a jacket or brace at an early period. Frequently when the deformity was advancing, the most approved treatment was a combination of plaster jacket or brace with recumbency on any convenient lounging place, and preferably in the open air. The plaster jacket was very largely used and its efficiency had been greatly increased, if not doubled, by the use of the Goldthwaite stretcher frame. The author demonstrated how to apply the plaster jacket by the aid of this frame, and stated that prolonged experience had thoroughly demonstrated that when made and applied with proper skill and care, the plaster jacket and many of the forms of braces were very efficient for the treatment and cure of spondylitis, and that in a great majority of the carefully treated cases the deforming hump could be minimized and largely neutralized, and in a few favorable cases nearly, or quite, obliterated. A set of principles based upon the most approved mechanical means of treatment might be formulated, though the extent to which they could be carried out varied in each individual case: (1) To remove the superincumbent weight of the body; (2) To prevent flexion and rotation of the spine; (3) To put the greatest possible amount of pressure upon, or in the immediate vicinity of, the deformity compatible with the integrity of the skin; (4) To very thoroughly hyperextend the spine. It was believed that the application of these principles placed the spine in the best possible circumstances for healing, with the least possible amount of deformity. The author exhibited a plaster jacket with chin rest; a Taylor back brace with head supports; a brace for cervical spondylitis partially applied, with the chin nearly touching the chest, which was the typical position in advanced cervical spondylitis, and a brace for the treatment of cervical spondylitis.

Gravitation Abscess.—Dr. Alex. C. Wiener discussed this phase of the subject, and presented a patient upon whom he had operated for gravitation abscess. Gravitation abscess was both frequent and difficult to treat. There was a temptation to open these abscesses at the most prominent part and empty the pus, but this did not reach the seat of the difficulty. It only encumbered the patient with permanently oozing fistulae, which were usually accompanied by mixed infection and amyloid degeneration, followed by the death of the patient. Such abscesses were rarely accompanied by fever, 101° F. being the highest recorded. The ordinary symptoms of sepsis were not present, and under favorable circumstances absorption might take place. He had observed in the right iliac fossa in a man, forty-five years of age, a tuberculous abscess the size of a child's head, which disappeared without leaving a trace. In this case there was a destruction of the first lumbar vertebra, and the only treatment employed was a permanent extension apparatus. Recently he had used, in a large psoas abscess, reaching down to the middle of the left femur, which originated in a tuberculous spondylitis of the first and second lumbar vertebrae, a large trocar to empty the pus. The man, thirty-four years of age, was attacked seventeen years ago with tuberculous spondylitis, which left quite a kyphosis of the lumbar spine. For seventeen years he did not experience any inconvenience, when, without apparent cause, the tuberculous process revived, resulting in a large psoas abscess which bulged forward at Scarpa's triangle. Just behind and below the left great trochanter was found a small swelling the size of a silver dollar. This spot was chosen for three preliminary injections of carbolic acid, six drops each time, five and seven days apart. Carbolic acid seemed to have powerful chemotactic qualities, since it allured, so to speak, the pus to the outer side of the femur. One pint of thick pus intermixed with chunks of fibrinous coagula and fine osseous debris was emptied the first time. Then fifteen drops of 95 per cent. solution of carbolic acid was slowly injected into the abscess cavity. The operation was repeated six times at intervals of one to three weeks. The last injection was made three months after the first one, when the fluid had changed into a clear yellow serum. At no time was there any harm experienced, either local or systemic, and the injections seemed to cause no pain or inconvenience.

Surgical Treatment of Tuberculous Spondylitis.—Dr. A. E. Halstead said that the surgical treatment of Pott's disease comprehended (1) the removal of the tubercular focus in the bone; (2) the treatment by incision or by puncture of the abscesses that are secondary to the bone disease, and (3) the operative treatment by laminectomy of the most serious of all of the complications of this disease, namely, the paraplegia resulting from pressure upon the spinal cord. The treatment of these abscesses by incision did not yield good results because of the inaccessibility of the underlying bone disease. In the cases where there was no hope of following the abscess to its source in the bone, incision should, if possible, be avoided. In this class of cases aspiration of the contents of the abscess cavity, followed by washing out of the cavity and the subsequent injection of iodoform, should be practised. In case of small abscess, one should incise the abscess and eradicate the diseased tissue, as this offered the best hope for a speedy and permanent cure. When the abscess was large, or when it appeared some distance from the diseased vertebrae, as in psoas abscess, puncture and injection of iodoform emulsion should be practised to prevent rupture and consequent mixed infection. He said the post-mortem findings in cases dying from par-

alysis occurring in Pott's disease presented the strongest argument in favor of laminectomy. It had been fully demonstrated that the paralysis was practically never due to an inflammation of the cord, and that the so-called myelitis was not a myelitis, but a pressure atrophy of slow development. Schmaus and others had shown by a careful study of the post-mortem records that it was only in about two per cent. of the cases that the pressure exerted upon the cord was the result of angularity of the vertebral column. In 32 cases out of 33 reviewed by Schmaus, the pressure was due to the tuberculous process breaking into the spinal cord, the immediate cause being either a tuberculous peripachymeningitis or a tuberculous abscess within the canal. The author's experience in the operative treatment of paraplegia due to spinal caries had been limited to two cases, which were detailed, one of which recovered, and the other died. He said laminectomy was contraindicated in cases in which there was tuberculosis of any other organ. In one of his cases the lung and pleural tuberculosis probably existed before the operation, although its presence was not recognized. The duration of the paralysis offered no contraindication to the operation, as it was not so much the length of time that the cord had been subjected to pressure, as the way in which the pressure was exerted that affected the integrity of the cord and determined the possibility of recovery.

Dr. M. L. Harris, in the discussion, said that the importance of an early diagnosis had been very well emphasized, and the statement also made, which was eminently correct, that mistakes in diagnosis were usually made because of omission on part of the surgeon or the physician to recognize certain points which were well known. These were errors of omission. The rigidity which had been emphasized as the early symptom was present in such a number of conditions about the cervical region that more attention should be devoted to this region in the differential diagnosis than to rigidity in other regions of the body. That is to say, there were so many conditions which might occur about the head and the neck which would produce rigidity of the cervical spine that one must make a differentiation. One of the important points to be observed in rigidity of the cervical spine as indicating the involvement of the spinal column itself was the relief which came from extension. For instance, take a child with a rigid neck, by gently extending the head and relieving the pressure, consequently pain, considerable motion might be given to the head without resistance on part of the patient. If one found relief of rigidity by this extension, it was certain evidence that the trouble was in the spinal column itself. If the rigidity was due to any extraspinal trouble, it was almost always increased by extension and by motion. With regard to the treatment of abscesses, as long as a tuberculous abscess of spinal origin was not increasing in size, he thought it should be left alone, as many of these abscesses disappeared by proper mechanical treatment. Only when they increased in size, in spite of conservative treatment, and when they were approaching the surface and seemed as though they would rupture spontaneously, something should be done by the surgeon. One should always attempt to cure these abscesses by the so-called subcutaneous method first, that is, aspirating them, and after washing them out, injecting them rather than opening them, in order to avoid secondary and mixed infections. In emptying these abscesses by means of a trocar, for instance, great care should be exercised not to produce unnecessary pressure on the abscess, as by so doing one was liable, particularly if the trocar became occluded by the caseous

masses, to infect the tract around the trocar, and one would have spontaneous opening of the tuberculous tract soon after in spite of anything he could do. The trocar should be introduced from some distance, to prevent, if possible, the escape of any of the fluid about the trocar, or following the trocar after it had been in the joint. He had seen infection follow the track of the trocar in a number of cases. He had used carbolic acid for a long time in injecting these cavities; it was preferable, as a rule, to iodoform emulsion.

Dr. Frederick Müller said that early diagnosis in every case of Pott's disease was of the greatest importance, and although we did not have any means of stopping the tuberculous process proper, we might succeed sometimes in restricting the deformity which would always follow the establishment of a tuberculous process in the vertebral column. The treatment which had been advocated was mostly conservative, which supported or extended the vertebral column, thus confining all surgical intervention to the treatment of abscesses and paralysis. Different kinds of appliances and apparatus had been mentioned. They were all useful in treating these cases, and no doubt good results could be obtained by employing them, but he did not think it was possible to give preference to a special brace in all cases. He said the Lorenz apparatus was very effective in these cases. It had more advantages than the Bradford frame, because in the Bradford frame the patients were able to make lateral motion, whereas in the Lorenz plaster bag or apparatus the patient was kept always in the same position. This apparatus consisted of a posterior case of plaster-of-Paris which included the head, neck, back, and pelvis, and was well padded. Dr. Müller then discussed the pathology of the paralysis in cases of spondylitis, and said that Schmaus, of Munich, about ten years ago, found that paralysis in cases of Pott's disease was due to a kind of inflammatory edema, which was caused by the establishment of the tuberculous process in the surrounding membranes of the medulla. This edema might last for years, or it might either disappear or terminate in a real myelitis. If the latter occurred, then the patient had permanent paralysis, whereas in the first instance the motility returned and the patient recovered. He referred to the treatment of Pott's disease as advocated by Calot about eight years ago. As to the treatment of paralysis, he mentioned laminectomy, saying that most of the surgeons who had operated on cases of paralysis by laminectomy had said that the paralysis disappeared independently of the operation that had been performed. He had seen two cases of paralysis in Pott's disease treated by the Calot redressment, and he was convinced that this treatment was very effective for paralysis. At all events, it saved patients from surgical intervention which might be fraught with great inconvenience and serious results.

Dr. Ridlon said, in referring to the remarks of Dr. Harris, that an abscess should not be interfered with unless it made the patient sick, no matter whether it was three inches, or one-eighth of an inch from the surface. If, however, it made the patient sick, it should be removed.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, held April 11, 1904.

The President, Thomas E. Satterthwaite, M.D., in the Chair.

Counter-Opening in the Vagina for Artificial Bladder Drainage.—The first paper of the evening, by Dr. Nathan G. Bozeman, was on this subject. He said

that perhaps the earliest mention of the procedure for establishing a vesicovaginal fistula for the relief of chronic cystitis was in the registry of the Woman's Hospital, New York, in 1858. In consultation with the patient's physician, Dr. J. Marion Sims, the record states, proposed to make an artificial opening in the base of the bladder for the purpose of allowing the free escape of urine, in the hope that by this means a new action would be set up in the walls of the bladder. Little or no profit resulted from this treatment, however, and in July, 1858, she applied for the closure of the vesicovaginal fistula. Up to this time it is natural to suppose that an artificial fistula had never been deliberately made, because it was only at this period that Drs. Sims and Nathan Bozeman made such advances in surgical treatment that it became easy, and vesicovaginal fistulae could be closed with more certainty. In his book, Dr. Emmet says that shortly after this colpocystotomy became a recognized treatment for chronic cystitis at the Woman's Hospital, at that time the only public institution for special treatment of women. Having referred to his father's work in the matter of artificial vesicovaginal fistula, Dr. Bozeman said that the problem of artificial drainage had presented itself because of the incalculable advantage it would be to the patient to be freed from the constant dribbling of urine as long as the opening in the bladder was maintained. An instrument was evolved which could be worn in the vagina, having a soft rubber urinal attached by means of a soft rubber tube. The improvements since made in this apparatus have been such as observation and experience in numerous cases have suggested. The cervix uteri and vesicovaginal septum rest upon the concave surface, the close adaptation of these parts and the vaginal walls rendering it self-sustaining. Urine and secretions percolate through round orifices into the interior, collecting in quantities of one-half to one ounce, or more, when they are voided through the tubes into the urinal. The latter may be either attached to the knee or placed in the bed, according as the patient is on her feet or reclining. The vaginal receptacle being once filled, the urine (there being no cushion of air in the tube to impede it) flows quickly out, and subsequently frequent intermittent discharges take place when there is only a small accumulation. (The apparatus was here presented for inspection.)

Dr. Bozeman then cited three illustrative cases in which there were injuries to the walls of the bladder which healed kindly when physiological rest and drainage of the organs was successfully established by means of his air and water irrigator and the vaginal drain. In the first the patient had been operated on at the Johns Hopkins Hospital by suprapubic cystotomy to remove a tuberculous ulcer from the bladder wall. Three months afterward an abscess developed and discharged in the abdominal scar. Through this sinus urine soon escaped, and after three years feces and flatus escaped through it, as well as being voided by the urethra. To relieve the cystitis and constant vesical tenesmus present an artificial vesicovaginal fistula was made, and at the same time a quantity of adenoid growths were removed from the bladder. Continuous irrigation of the bladder was then applied by the Bozeman irrigator for ten days, when a vaginal drain was fitted. Since then, two years ago, the patient has not suffered from bladder symptoms, and she keeps herself free of the discomforts of dribbling urine by wearing the drain continuously. In this case, he said, an attempt to close the fistula would not be advisable even now, because the bladder cavity is much contracted and is constantly filled with adenoid vegetations, which have to be removed from time to time through the fistula. The second case, that of a professional nurse, was one of unusual interest. In 1898 the patient began to have recurrent attacks of cystitis. In

1900, after the voluntary escape of the contents of a painful swelling in the right inguinal region into the bladder, flatus and fecal matter commenced passing by the urethra. Dr. Bozeman made a diagnosis of adherent ovarian tumor on the left side, with a communication between the bladder and intestine through some dense adhesions. He opened the abdomen, removed the cyst, and after tying them by double ligature severed the adhesive bands which were found between the bladder and intestines. Subsequently developments showed that a communication still existed between the intestines and bladder; but it was deep down under the broad ligament and could not be reached by opening the abdomen. After severe constitutional symptoms and local pain had continued for some time, there appeared in the right lumbar region a tumor which was evidently the pelvis of the kidney distended by urine and pus. Having made an opening into the bladder, he passed a catheter ten inches into the ureter, when it met with resistance. This was gradually overcome, and bloody, purulent matter was drawn from the pelvis of the kidney. The opening of the sinus into the bowel was found to be located by the side of the urethral orifice. The catheter was left in place twelve hours, the tumor subsided and the symptoms abated. In a short time no more gas or fecal matter passed into the bladder, and the urine became clear. Considering the debilitated condition of this patient, he might have hesitated to perform the operation he did had he not felt positive that he could keep her perfectly dry by means of his irrigating apparatus. She now wears the drain as she goes about her duties as nurse, but she hesitates to have the opening in the bladder closed. In the third case there was an opening in the bladder wall, about an inch and a half in diameter, which was the result of sloughing following an operation for the relief of an inguinal hernia with incarceration of intestine and bladder, with firm adhesions in the inguinal canal. An attempt had been made to close the fistula, a catheter being retained in the urethra for drainage, but it resulted in failure. Dr. Bozeman, having been called to see the case, first established a vesicovaginal fistula, and then, with much difficulty, dissected the bladder free from the densely indurated borders of the suprapubic opening. This was closed by a continuous chromicized catgut suture, and a second row of silkworm-gut sutures brought the muscle and integument as well together as it was possible to do. After the operation his continuous irrigator was employed, and the suprapubic opening soon healed. After ten days a drainage instrument was adjusted, and at the end of ten weeks the artificial vesicovaginal fistula was closed. The attempt to drain the bladder in this case by simply making a vesicovaginal fistula would have proved futile. In conclusion, he maintained that in all cases, after an artificial fistula has been made into the vagina, a system of irrigation and drainage similar to that described is absolutely necessary, both for its efficacy and for the comfort of the patient.

The Treatment of Tuberculosis of the Larynx and Prostate by the X-ray, High Frequency Currents and the Cooper Hewitt Light.—Dr. Sinclair Tousey read a paper with the above title. In regard to this sort of treatment for tuberculosis of the prostate he said he had not been able to find anything in medical literature. As regards the treatment of tuberculosis of the larynx by the Roentgen ray, Williams says: "The successful treatment of lupus by the X-rays should lead us to try them in laryngeal tuberculosis," and as long ago as 1897 Revillet reported their use in a case of acute pulmonary and laryngeal tuberculosis. Pusey and Cauldwell think they should be employed as an auxiliary to other treatment, and in their book is figured an X-ray tube for the

treatment of the larynx. Having given a digest of the literature of X-ray treatment for pulmonary tuberculosis, Dr. Tousey stated that his own opinion at the present time was that judicious application of the X-ray or of the ultraviolet ray and high frequency currents is indicated in every case of tuberculosis. Treatment of tuberculosis of the larynx by the violet and ultraviolet rays, as produced by the electric arc light in its various forms, has been employed by Freudenthal in a number of cases with good results as regards pain and dysphagia, but no perceptible effect upon the tubercular infiltration or ulceration. He can see in the electric light only an adjuvant to the host of other remedies at our disposal, though an adjuvant that is of great assistance in some instances.

Dr. Tousey reported the case of a lady now under treatment for tuberculosis of the larynx. When first seen she had had throat trouble for three years and her weight had become reduced from 130 to 103 pounds. She was running a temperature of 102° F., and during the last four months had had profuse expectoration full of tubercle bacilli, and a visible tuberculous deposit in the larynx. She was constantly coughing and expectorating, and could scarcely speak above a whisper. There was considerable loss of strength, though she presented very little evidence of pulmonary trouble. His treatment was begun December 15, 1903, and consisted in exposure to the X-ray once in every four or five days, and exposure to the Cooper Hewitt light and application of high frequency currents once in each interval between the X-ray applications. In applying the X-ray he employed an 8-inch coil run by current from the street (110 volts direct current), using a liquid interrupter of his own devising. By it the current through the primary coil is interrupted at the rate of about ten thousand times a minute, and each such current passing through the primary coil induces a current of very high voltage in the secondary coil. From the two poles of the latter, wires pass to the two poles of the X-ray tube, the negative terminating in a concave mirror within the tube (the cathode), and the positive in a platinum disk in the center of the tube (the anode). In this case two different tubes were used; first, a Gundlach heavy anode tube of 60 cm. capacity, and later a Müller heavy anode tube of 50 cm. capacity. Both were provided with regulating devices, and the degree of vacuum was so adjusted as to give the greatest photochemical effect which could be combined with sufficient penetration to pass through the entire thickness of the chest. The distance from the nearest surface of the chest to the anode was about ten inches, and the time of exposure about five minutes in front and five minutes behind. The face and scalp were shielded by a sort of cap made of X-ray metal. Following the general exposure of the chest to the X-ray, a special application was made to the larynx by means of a tube made of lead glass opaque to the X-ray, with the exception of a cylindrical prolongation, into which the rays are directed from the anode and from the transparent end of which they emerge. The names of Cauldwell, Morton and Cossar have been associated with this tube, in which some trifling modifications have been made by Dr. Tousey. The tube is held close to the outside of the throat. The current employed is milder than that employed for the chest, and the exposure, which is maintained for only about three minutes, is distributed over different aspects of the larynx. The high frequency currents are obtained from the same 8-inch X-ray coil by means of the d'Arsonval transformer. A series of sparks passes across a spark-gap enclosed in a glass cylinder, and the vacuum electrode becomes filled with ten thousand waves a minute of ultraviolet and violet light passing into the surface of the body. A very large amount of ozone is also gen-

erated and carried into the body by the electric current, and this is regarded as an important feature of the application. The intensity is controlled by regulating the current in the X-ray coil and the length of the spark-gap, and the proper strength appears to be one devoid of prickling sensation, but sufficient to warm up the vacuum bulb when it is in contact with the skin. Dr. Tousey's vacuum electrodes have no wires. The lamp made for him by the Cooper Hewitt Company is actuated by the street current reduced by a rheostat to 5 amperes with 110 volts; this current passes through a vacuum tube 24 inches long and 1 inch in diameter, which contains vapor of mercury and at one end a certain amount of liquid mercury. The light given out has 400 candle power and its spectrum is almost pure violet, containing the chemical and life-giving properties of sunlight intensified about a hundred times. This light is applied for nearly fifteen minutes in front and for the same length of time behind the chest, from a distance of five or six inches.

The results of treatment have been as follows: Disappearance of expectoration (which took place in three weeks); very great improvement as to the voice; reduction of temperature to normal; marked gain in strength; and a gain in average weight of about two pounds. Considerable improvement has also occurred in the matter of swallowing, difficulty in regard to which appeared to be entirely psychic. As regards the local condition, before the treatment was commenced Dr. Richard Kalisch found an area of swelling and hyperemia below the left ventricular band, with a distinct line of abrasion, though hardly ulceration. He now finds the area of infiltration diminished and the abrasion healed, with a whitish appearance which may be due to cicatrization.

In tuberculosis of the prostate and bladder Dr. Tousey's treatment consists (1) in having the light from an ordinary X-ray tube shine obliquely downward through the lower portion of the abdomen and also occasionally through the perineum. (2) Alternating with the perineal application, a special X-ray tube is introduced into the rectum. This tube is made for the most part of lead glass opaque to the X-ray. It has an anodal disk; its cathode stream is directed down a cylindrical prolongation of the transparent glass, from which the X-ray emerges in all directions. This prolongation is cooled by a continuous current passing through a water-jacket. The application lasts for only a couple of minutes. (3) The application of high frequency currents over the lower portion of the abdomen, and also in the rectum on occasions when the intrarectal X-ray tube is not employed. For the intrarectal application of high frequency currents a special vacuum electrode is employed in which the tube is insulated, except for its distal two or three inches, by a separate external cylinder of glass. The application lasts five minutes.

Tuberculosis of the Bladder and Prostate.—A patient now under treatment is Mr. M., aged thirty-one years, who for several years has had this affection. A year ago he was treated with the X-ray, the application being made daily by allowing the light to shine upon the lower part of the abdomen while the patient stood up in front of the tube; also by the application of vacuum electrodes connected directly with the X-ray coil without the d'Arsonval transformer. Following this treatment, several enormous pus sacs formed and after causing months of suffering emptied into the bladder. When he came to Dr. Tousey, December 23, 1903, he was urinating 25 to 30 times a day, the urine looked like a mixture of blood and pus, and microscopical examination showed the presence of tubercle bacilli. On rectal examination the prostate was found to be mod-

erately enlarged and tender. He has been treated twice a week, and irrigations have been continued. There were at first considerable pain and irritation in the urethra, and scales could be washed out of it. This condition has been relieved by X-ray applications, the penis being held up against the abdomen during the treatment. The patient's weight has increased from 147 to 152 pounds, there has been no formation of pus sacs, as before, and his comfort and strength have uninterruptedly improved. The frequency of micturition has markedly decreased, so that at times he is able to go five hours without urinating. The urine is much clearer, and no visible blood has been present in it for two months. The microscopical examinations showed at first an increasing and lately a rapidly decreasing number of tubercle bacilli. The last examination, a day or two since, shows only an occasional bacillus.

Dr. Tousey then gave a demonstration of the special apparatus described in the paper and also of a method of skiagraphy in which the picture is produced directly upon sensitized paper and may be developed in any dimly lighted room. A photographic dark room is not required, and the whole process occupies but a few minutes.

Unfortunate Results from X-ray Treatment.—Dr. H. Holbrook Curtis had seen very unfortunate results from X-ray treatment in three cases of laryngeal tuberculosis. The application, he believed, was apt to be followed by bleeding. He had supposed that high frequency currents produce effects opposite in character to those of the X-ray, and he could not well understand why they should both be used in the same patient.

Encouraging Results from High Frequency Currents.—Dr. W. Freudenthal said he had used the X-ray in a few cases, but did not feel that he had had sufficient experience to form a positive opinion in regard to its effects. He did not introduce a tube into the patient's mouth. In employing high frequency currents, however, he had introduced the electrode directly into the larynx, and he had had some very encouraging results from the method. The incipient cases of tuberculosis got better under it. In the secondary and tertiary stages of the disease he had been able to abolish pain to a large extent, and this was undoubtedly a great item. There were cases in which the affection improved in the lungs, but did not in the larynx. The violet rays did not seem to penetrate the cartilage, but a method had now been devised by which the red and yellow rays could be rendered just as efficient as the violet.

Failures Much More Numerous Than Successes.—Dr. Albert C. Geyser said it was proper that in his digest of the literature of the treatment of pulmonary tuberculosis by the X-ray Dr. Tousey should have given the failures, as well as the successes. It was noticeable, however, that the failures were far in excess. In a large number of instances it did not seem to make any difference what treatment was employed. If patients were inspired with a feeling of hopefulness they improved for a time under any kind of treatment. Then came the reaction, and they began to go down-hill. He himself had treated five cases of tuberculosis of the larynx with the X-ray. Of these three died, one grew positively worse, and one had disappeared. He did not think that any effect could be got from applications external to the larynx. The high frequency currents were stimulating. Their effects were exactly opposite to those of X-rays, and, like Dr. Curtis, he was somewhat at a loss to understand why both these should be employed on the same patient. He trusted sincerely, however, that Dr. Tousey, with his three kinds of light, would have better success than some other observers had had.

Tuberculosis of the Urinary Tract.—Dr. H. G. Spooner said that the action of high frequency currents and of the X-ray on tubercle bacilli was essentially the same. The bacilli first rapidly increase in number and show a tendency to form clumps, then they gradually diminish and become paler in color. The general improvement of the cells of the body probably makes them more resistant to the invasion of the tubercle bacilli; but whether the vitality of the bacilli is lowered or whether the raising of the vitality of the cells, or a combination of both is at work, we do not know. Now, inasmuch as fresh air and an outdoor life have proved of signal service in many of the cases of urinary tuberculosis, it would seem to be but reasonable that the X-rays and high frequency currents, by stimulating the cells of the entire body, should have a sphere of usefulness in genito-urinary tuberculosis, particularly of the prostate, as an aid to hygiene, diet, etc.

High Frequency Currents Probably More Efficient Than the X-ray.—Dr. Joseph W. Gleitsmann said that he had not as yet formed a decided opinion in regard to the relative value of the different lights. He could say, however, that the X-rays had not given the satisfaction which he had expected. He had seen better results from high frequency currents locally applied. In conditions other than laryngeal tuberculosis, such as glandular swellings of the neck, this form of electricity appeared to be quite beneficial. In tuberculosis he had met with no results to speak of.

BOOK REVIEWS.

A SYSTEM OF PRACTICAL SURGERY. By Prof. E. VON BERGMANN, M.D., Prof. P. VON BRUNS, M.D., and Prof. J. VON MIKULICZ, M.D. Volume I. Translated and Edited by WILLIAM T. BULL, M.D., Professor of Surgery, College of Physicians and Surgeons, Columbia University, New York, and WALTON MARTIN, M.D., Instructor in Surgery, College of Physicians and Surgeons, Columbia University, New York. Surgery of the Head. Lea Brothers & Co., New York and Philadelphia.

THE appearance of this work in English has been looked for with much interest and now that the first volume is in our hands we shall await the others with a still greater degree of pleasurable anticipation. The character of the original and the names of the American editors are such as to justify the most extravagant expectations and yet it is no exaggeration to say that these have been more than realized. There is a distinct gap in our surgical literature, which this work seems well adapted to fill, for, while there is an abundance of excellent surgical treatises of the less comprehensive type, no American system of really pretentious scope has appeared of recent years. In its German form the present work achieved such a popularity that the earlier volumes were appearing in a second edition before the later ones had all been issued, and translations have already been made into several other languages. The names of v. Bergmann, v. Bruns, and v. Mikulicz are such as to attract attention singly, and in combination they form an editorial trinity hardly to be excelled among continental surgeons. Given such a groundwork as was afforded by the second edition of their production, it is not surprising that the American editors with their collaborators should have succeeded in bringing forward a work which will probably remain for years the court of last resort in questions of surgical theory or practice. The German text has in many instances been enriched by descriptions of improvements in technic devised by American surgeons, and also by

increasing the number of illustrations which almost without exception are both interesting and useful.

This volume on the surgery of the head is the work of eight authors, including such prominent men as v. Bergmann, Krause, Krönlein, Kümmel and Schlatter. Separate sections are devoted to the skull and its contents, the ear, the face, including plastic operations, the neuralgias of the head, the salivary glands, the jaw, the nose, the mouth and the pharynx. This purely regional arrangement has made appropriate assignment of the material easy and each section is the work of a man whose name has become prominent in respect to that particular field. Thus the monograph on the injuries and diseases of the skull, as written by v. Bergmann, stands out with an authoritativeness no less celebrated a writer could impress upon it and Krause's discussion of the cranial neuralgias possesses unequaled interest and value.

With a work laid out on such broad lines and covering the field with such wealth of detail, it is impossible to single out separate topics for special discussion. In every section which the reviewer has perused the impression has been one of extreme thoroughness and reliability combined with much attention to the practical application of the principles laid down. The translation has been well carried out and an agreeable smoothly following text produced. In every respect the work seems destined to secure for itself a place among the most important contributions to the study and practice of surgery and will no doubt command the most widespread attention.

LE MALATTIE DEI PAESI CALDI. LORO PROFILASSI ET IGIENE (Diseases of Warm Countries, their Prophylaxis and Hygiene). Ulrico Hoepli, Milan.

THIS little volume contains in brief space a wonderful amount of observation with regard to the diseases of warm countries, their prophylaxis and hygiene. It is of all the more interest now, since our own possessions in the American tropics as well as in the East and the work on the Panama Canal are likely to bring the physicians of our larger seaboard towns in touch with many more of the specific diseases of warm countries than was the case before. The volume also contains an excellent account of the various cutaneous affections due to parasites that inhabit the various warm countries.

There is an appendix to the little volume regarding life in Brazil that will be of special value to those contemplating a residence in that country. This gives details not only with regard to the special diseases of Brazil but also its fruits and plants as well as its animal parasites, its snakes, especially the poisonous reptiles, its spices, and so forth, which are the result evidently of information gathered during travels in that country.

The general impression gathered from the book is that the diseases of hot countries are by no means so frequent or inevitable by the foreign-born resident as has been thought and that the removal to a tropical climate is, by no means necessarily the almost fatal step it has been considered. The white race is evidently destined to play a much more important rôle in the tropics than has hitherto been imagined.

LA RACHITIDE, E LE DEFORMITA DA ESSA PRODOTTE— (Rachitis and the Deformities Produced by It). By P. MANCINI, M.D., and MANUELE HOEPLI. Ulrico Hoepli, Milan.

THIS little volume, with some 116 illustrations in the text, contains an excellent review of our present knowledge to date of this serious bone condition, which has

so long been a source of interest to physicians and pathologists, and yet has, in spite of all the study devoted to it, retained something of the mystery it had at the very beginning.

The chapters on prophylaxis and cure occupy nearly one-half the book and contain many valuable suggestions as regards diet, drug treatment, exercises of various kinds, so as to prevent misdevelopments, and finally, orthopedic treatment. The whole is evidently written by a man who has been deeply and practically interested in the subject about which he writes and whose experience cannot help but be of value to others. It is very evident that this little series of manuals is going to be of great suggestive value to all those who, outside of Italy, can read Italian, as well as to Italian physicians themselves.

ELETTRICITA MEDICA (Medical Electricity). By A. D. BOCCIARDO, M.D. Ulrico Hoepli, Milan.

THIS little volume, which forms another of the series of the Hoepli Manuals, contains a better résumé in a shorter space of modern electricity and its application to medicine than anything the reviewer has hitherto seen. Writers on the subject in English would certainly do well to consult this unpretentious manual when compiling or revising their books. It is well illustrated and is thoroughly up to date. Those interested especially in the subjects it treats, which include the use of the Roentgen rays, phototherapy, and radiotherapy will find it to their advantage to consult it because of its suggestive practicalness.

A HANDBOOK OF OPHTHALMIC SCIENCE. By HENRY E. JULER, F.R.C.S., Ophthalmic Surgeon to St. Mary's Hospital, Consulting Surgeon to the Royal Westminster Ophthalmological Hospital, Consulting Ophthalmological Surgeon to the London Locke Hospitals. With illustrations. Third edition. Revised and enlarged. Lea Brothers & Company, New York and Philadelphia.

THIS excellent book appears in the third edition with few changes, and deserves the consideration it has received in the past. It expresses in great part the personal attitude of its author, and in this respect is perhaps more interesting than many books which are more modern in attitude, and more elaborate in detail. The treatment of the subject is conservative and commands respect, although in some instances the point of view is somewhat different from our own. Very little attention is given to methods which have not been thoroughly established. The book is, therefore, a safe guide for the student. But it must not be thought that the most recent steps in ophthalmology have been ignored. The operative treatment of myopia, and the operation of sympathectomy for glaucoma are mentioned. It is truly stated of the latter that it is doubtful whether a favorable result is permanent, but the statement that the operation is accompanied by severe constitutional symptoms cannot be accepted, if the operation is properly done. This operation is still *sub judice*, and the discussion should not be confused by a mistaken idea as to its apparent gravity. The chapters on cataract and its treatment and on refraction are commendable, although one might differ with regard to the value of tests for astigmatism. Very few, we fancy, would give first place to the use of the stenopeic slit, but the fact that it is overlooked in other books makes its prominence here of interest.

Retinoscopy is given sufficient consideration.

The chapter on the ocular muscles is adequate, except the brief consideration of heterophoria, which, to many of our modern specialists, may seem incomplete, but perhaps that is an error on the safe side.

The illustrations are numerous, and for the most part excellent. The colored plates, 17 in number, are a little hard and crude in color, but they are quite as accurate and helpful as others in which the printing has been more successful. The diagrams are clear and decidedly helpful. There are appendices giving formulæ, visual tests and numerous semidiagrammatic plates illustrating the normal and pathological histology of the eye. The index is excellent. The work of the publishers leaves something to be desired, the binding is rather weak. The typography, however, is good, and it is a pleasure to note the use of paper which is slightly cream in tone, and has a dull surface.

A MANUAL OF PSYCHOLOGY. By G. F. STOUT, M.A.Camb, M.A.Oxon., LL.D., Aberdeen, Wilde Reader in Mental Philosophy in the University of Oxford; Examiner at London University; Editor of *Mind*; etc. Hinds & Noble, New York.

As might well have been expected, the editor of *Mind* has produced an excellent manual of psychology. With the thoroughness of an English writer he has combined something of the popular note in scientific writing which is so much more characteristic of American writers on scientific subjects. The book is likely to be of interest to physicians, because Dr. Stout is convinced that the study of psychology is of no use to the student unless he is able to live himself into psychological problems so as to acquire a real power of thinking for himself on psychological topics. For this purpose, cut and dried statements and the skimming of important questions are of no avail.

The reviewer notes some of the passages which in reading have particularly drawn his attention to the value of the book for physicians. In the chapter on Emotions in the discussion of unfamiliarity and the effects of fright there is the story of the dog who was frightened into a sort of epileptic fit by a bone being drawn across the floor by a thread which he did not see. The chapter on Memory contains a number of passages that are likely to be suggestive to physicians. The same thing may be said with regard to the chapter on Voluntary Decision, the reading of which makes many of the peculiar phases of the doubting mania or *folie de doute* of the French, more clear. In general, the book contains an excellent résumé of modern psychology that cannot help but be useful to those interested in psychological problems, either from the educational, the social or the humanitarian standpoint.

BOOKS RECEIVED.

The MEDICAL NEWS acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the MEDICAL NEWS will shortly appear:

PAIN AND ITS INDICATIONS. By Dr. E. C. Hill. 12mo, 328 pages. G. P. Engelhard & Co., Chicago.

MEDICAL NEWS POCKET FORMULARY. 12mo, 287 pages. Lea Brothers & Co., New York and Philadelphia.

IMMUNE SERA. By Dr. A. Wasserman. Translated by Dr. C. Bolduan. 12mo, 75 pages. John Wiley & Sons, New York.

AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY. Edited by Dr. G. M. Gould. 8vo. Illustrated. W. B. Saunders & Co., Philadelphia, New York and London.

MANUAL OF CLINICAL MICROSCOPY AND CHEMISTRY. By Dr. H. A. Lenhartz. Translated by Dr. H. T. Brooks. 8vo, 412 pages. Illustrated. F. A. Davis Co., Philadelphia.